Pantheon Report

Generated at 2019-01-03 20:22:59 (UTC).

Data path: GCE Sydney on `ens4` (*local*) →GCE Tokyo on `ens4` (*remote*).

Repeated the test of 19 congestion control schemes 5 times.

Each test lasted for 30 seconds running 1 flow.

NTP offsets were measured against `time.google.com` and have been applied to correct the timestamps in logs.
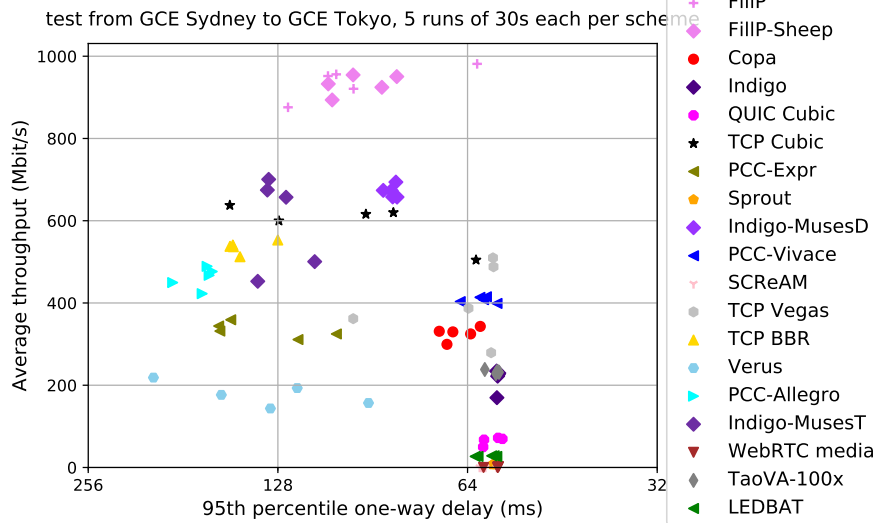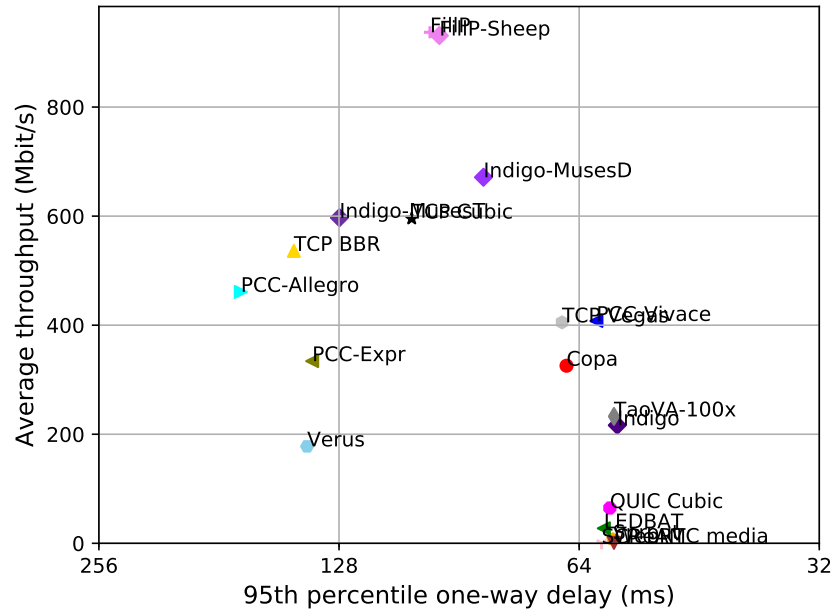
```
System info:
Linux 4.15.0-1025-gcp
net.core.default_qdisc = fq
net.core.rmem_default = 16777216
net.core.rmem_max = 536870912
net.core.wmem_default = 16777216
net.core.wmem_max = 536870912
net.ipv4.tcp_rmem = 4096 16777216 536870912
net.ipv4.tcp_wmem = 4096 16777216 536870912

Git summary:
branch: muses @ c654af0b7d59d4ef4b914cfac404e1fc2e96dc68
third_party/fillp @ d6da1459332fcee56963885d7eba17e6a32d4519
third_party/fillp-sheep @ 0e5bb722943babcd2b090d2c64fcd45e12e923f9
third_party/genericCC @ d0153f8e594aa89e93b032143cedbdfe58e562f4
third_party/indigo @ 2601c92e4aa9d58d38dc4dfe0ecdbf90c077e64d
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/muses @ 65ac1b19bbefed0c6349ae986009b4fa8643c40a
third_party/muses-refactored @ 31f8f0ba8ef8b1da76c2bc0cd0a7850c33ff64fb
third_party/pantheon-tunnel @ f866d3f58d27afd942717625ee3a354cc2e802bd
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
 M receiver/src/buffer.h
 M receiver/src/core.cpp
 M sender/src/buffer.h
 M sender/src/core.cpp
third_party/pcc-experimental @ cd43e34e3f5f5613e8acd08fab92c4eb24f974ab
third_party/proto-quic @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream-reproduce @ f099118d1421aa3131bf11ff1964974e1da3bdb2
 M src/ScreamClient
 M src/ScreamServer
third_party/sprout @ 366e35c6178b01e31d4a46ad18c74f9415f19a26
 M src/examples/cellsim.cc
 M src/examples/sproutbt2.cc
 M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
 M src/verus.hpp
 M tools/plot.py
```

```
third_party/vivace @ 2baf86211435ae071a32f96b7d8c504587f5d7f4
third_party/webrtc @ 3f0cc2a9061a41b6f9dde4735770d143a1fa2851
```

test from GCE Sydney to GCE Tokyo, 5 runs of 30s each per scheme
(mean of all runs by scheme)

test from GCE Sydney to GCE Tokyo, 5 runs of 30s each per scheme

scheme	# runs	mean avg tput (Mbit/s) flow 1	mean 95th-%ile delay (ms) flow 1	mean loss rate (%) flow 1
TCP BBR	5	536.23	145.82	0.49
Copa	5	325.64	66.38	0.01
TCP Cubic	5	595.57	103.77	0.08
FillP	5	937.15	98.44	0.54
FillP-Sheep	5	931.16	95.81	0.26
Indigo	5	216.47	57.33	0.00
Indigo-MusesD	5	671.29	84.36	0.04
Indigo-MusesT	5	597.09	127.86	0.06
LEDBAT	5	27.51	59.61	0.01
PCC-Allegro	5	461.03	169.96	3.63
PCC-Expr	5	334.11	138.32	1.39
QUIC Cubic	4	64.75	58.57	0.00
SCReAM	5	0.22	59.99	0.00
Sprout	5	7.51	58.06	0.00
TaoVA-100x	5	232.69	57.88	0.00
TCP Vegas	5	405.17	67.24	0.00
Verus	5	177.72	140.36	2.24
PCC-Vivace	5	407.83	60.89	0.00
WebRTC media	5	0.84	57.88	0.00

```
Run 1: Statistics of TCP BBR

Start at: 2019-01-03 15:47:17
End at: 2019-01-03 15:47:47
Local clock offset: -0.477 ms
Remote clock offset: 1.122 ms


# Below is generated by plot.py at 2019-01-03 18:25:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 540.96 Mbit/s
95th percentile per-packet one-way delay: 150.923 ms
Loss rate: 0.71%
-- Flow 1:
Average throughput: 540.96 Mbit/s
95th percentile per-packet one-way delay: 150.923 ms
Loss rate: 0.71%
```
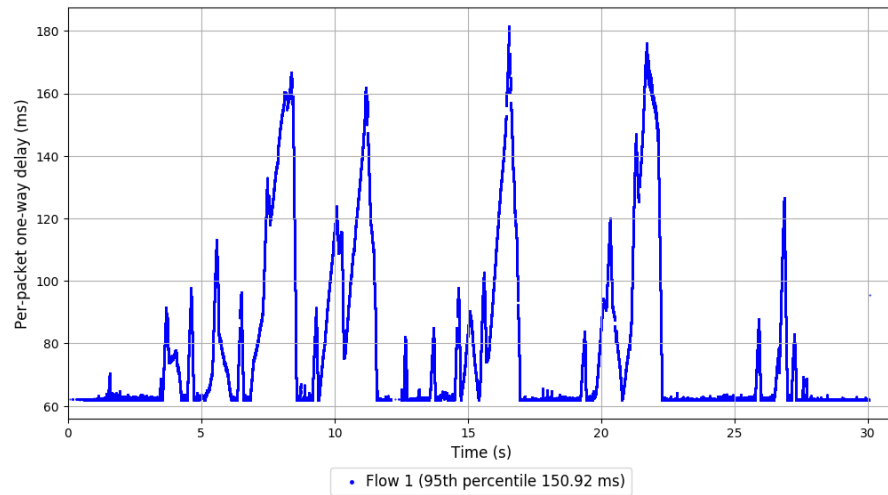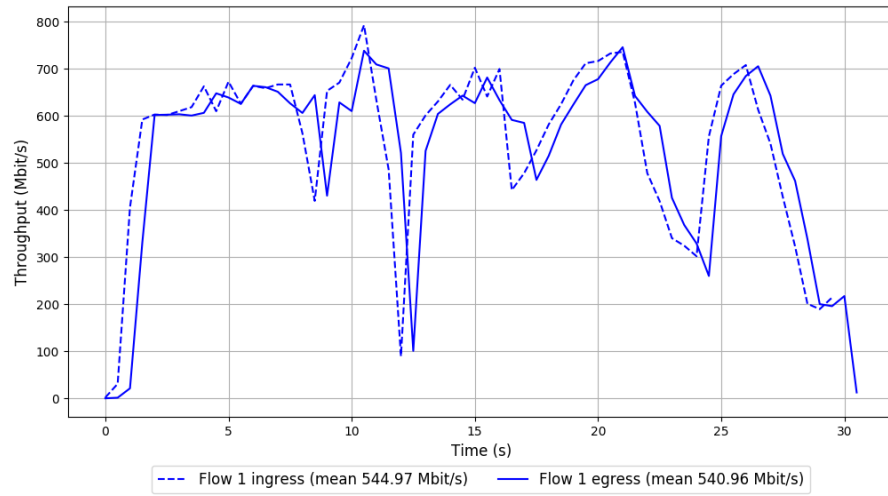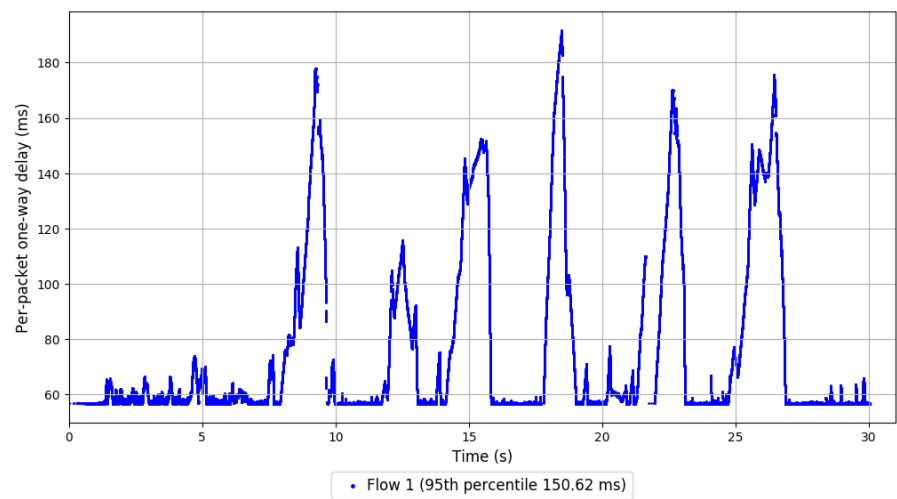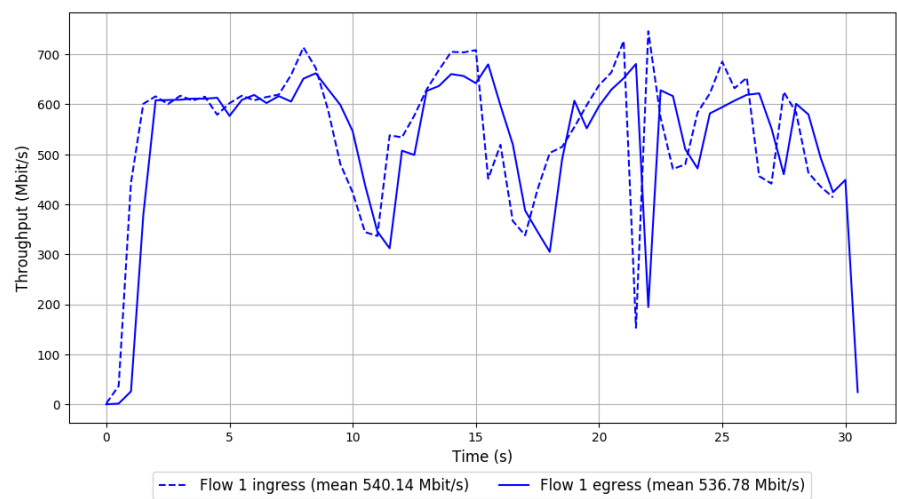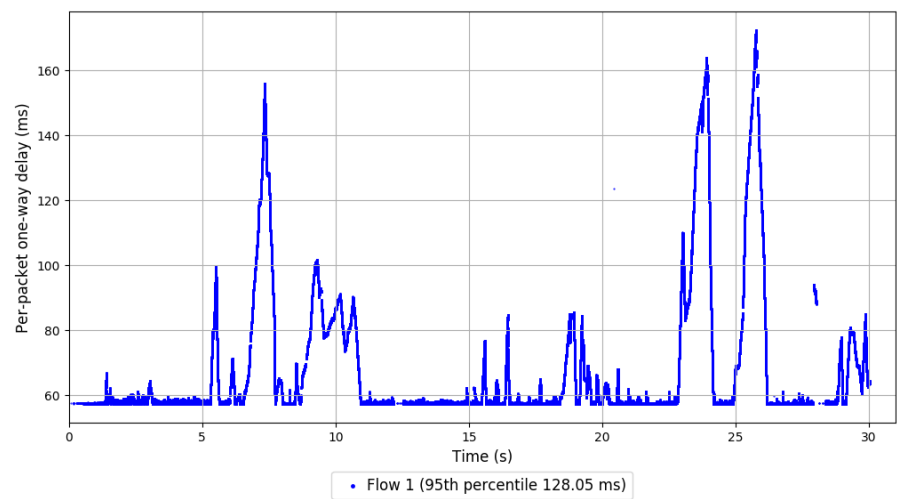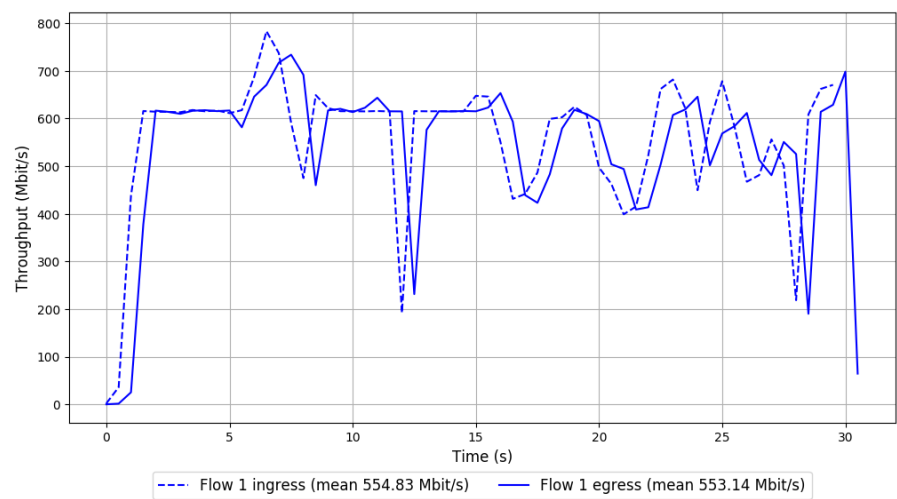
Run 1: Report of TCP BBR — Data Link

Flow 1 ingress (mean 544.97 Mbit/s)   Flow 1 egress (mean 540.96 Mbit/s)
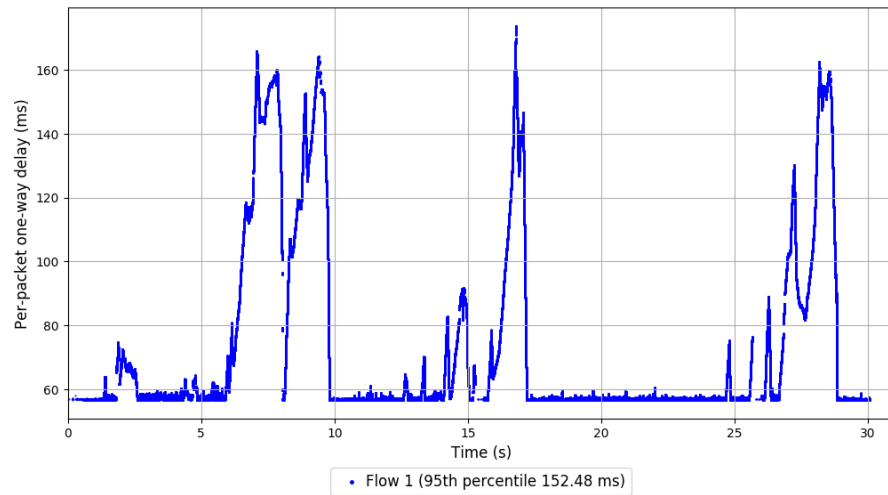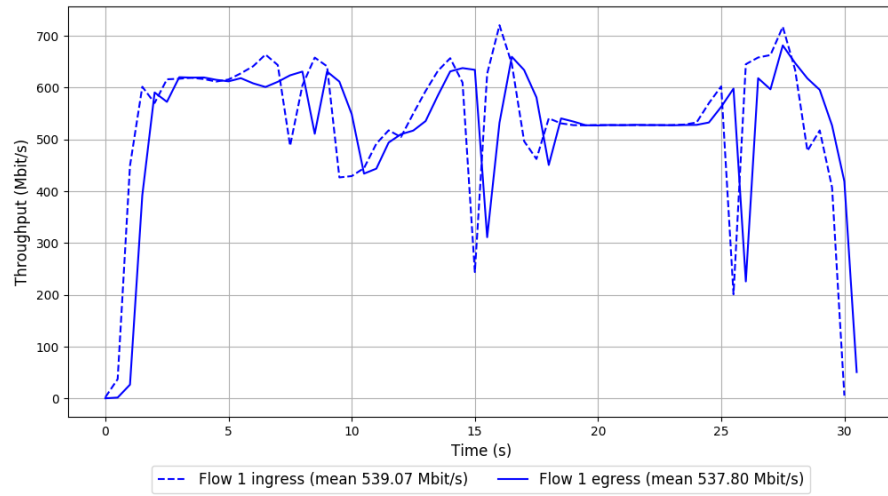

Flow 1 (95th percentile 150.92 ms)

```
Run 2: Statistics of TCP BBR

Start at: 2019-01-03 16:15:42
End at: 2019-01-03 16:16:12
Local clock offset: 0.129 ms
Remote clock offset: -0.121 ms


# Below is generated by plot.py at 2019-01-03 18:25:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 536.78 Mbit/s
95th percentile per-packet one-way delay: 150.623 ms
Loss rate: 0.62%
-- Flow 1:
Average throughput: 536.78 Mbit/s
95th percentile per-packet one-way delay: 150.623 ms
Loss rate: 0.62%
```

Run 2: Report of TCP BBR — Data Link

```
Run 3: Statistics of TCP BBR

Start at: 2019-01-03 16:44:07
End at: 2019-01-03 16:44:37
Local clock offset: -0.345 ms
Remote clock offset: -0.278 ms


# Below is generated by plot.py at 2019-01-03 18:25:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 553.14 Mbit/s
95th percentile per-packet one-way delay: 128.054 ms
Loss rate: 0.30%
-- Flow 1:
Average throughput: 553.14 Mbit/s
95th percentile per-packet one-way delay: 128.054 ms
Loss rate: 0.30%
```
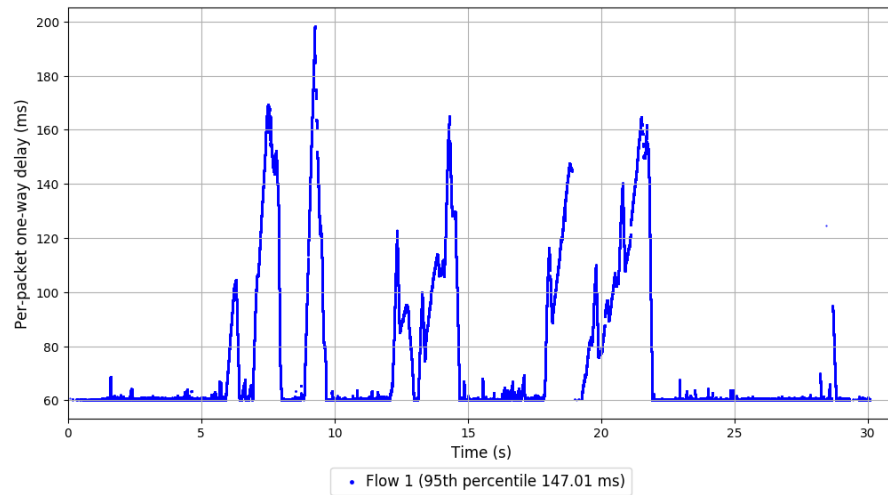
Run 3: Report of TCP BBR — Data Link

Flow 1 ingress (mean 554.83 Mbit/s)   Flow 1 egress (mean 553.14 Mbit/s)

Flow 1 (95th percentile 128.05 ms)

```
Run 4: Statistics of TCP BBR

Start at: 2019-01-03 17:12:30
End at: 2019-01-03 17:13:00
Local clock offset: 0.186 ms
Remote clock offset: -0.174 ms


# Below is generated by plot.py at 2019-01-03 18:25:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 537.80 Mbit/s
95th percentile per-packet one-way delay: 152.484 ms
Loss rate: 0.24%
-- Flow 1:
Average throughput: 537.80 Mbit/s
95th percentile per-packet one-way delay: 152.484 ms
Loss rate: 0.24%
```
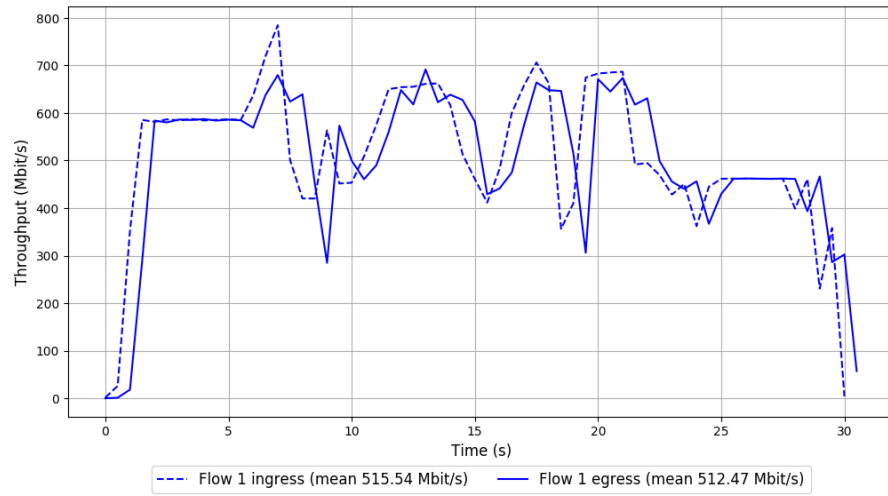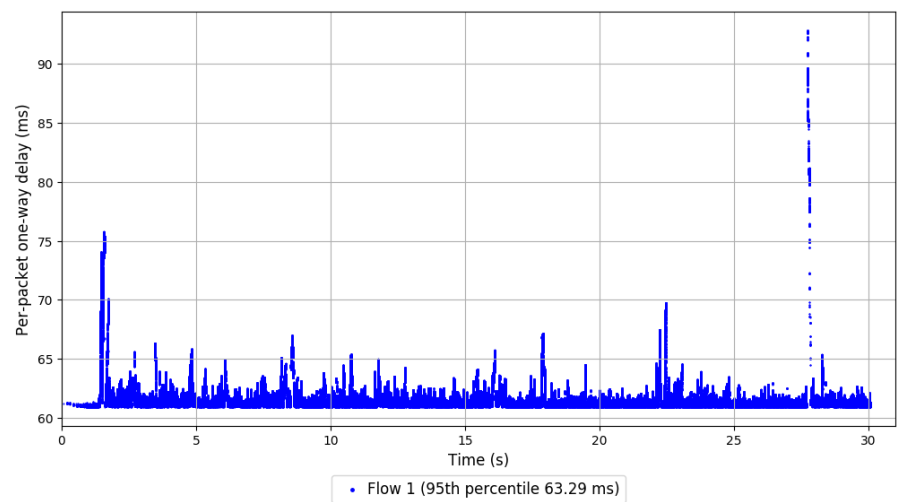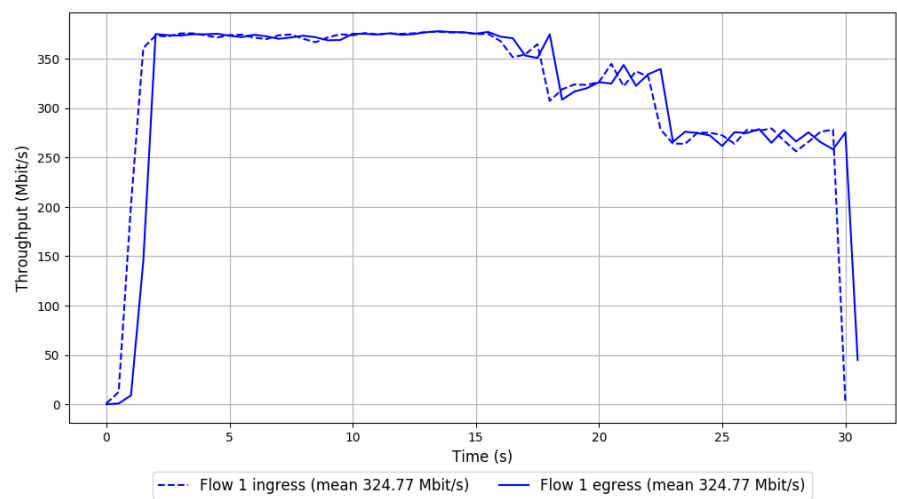
Run 4: Report of TCP BBR — Data Link

Flow 1 ingress (mean 539.07 Mbit/s)   Flow 1 egress (mean 537.80 Mbit/s)
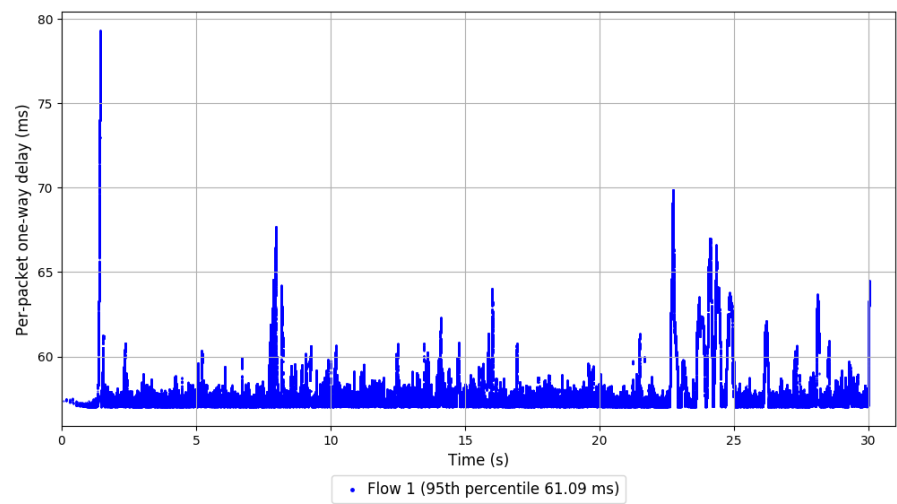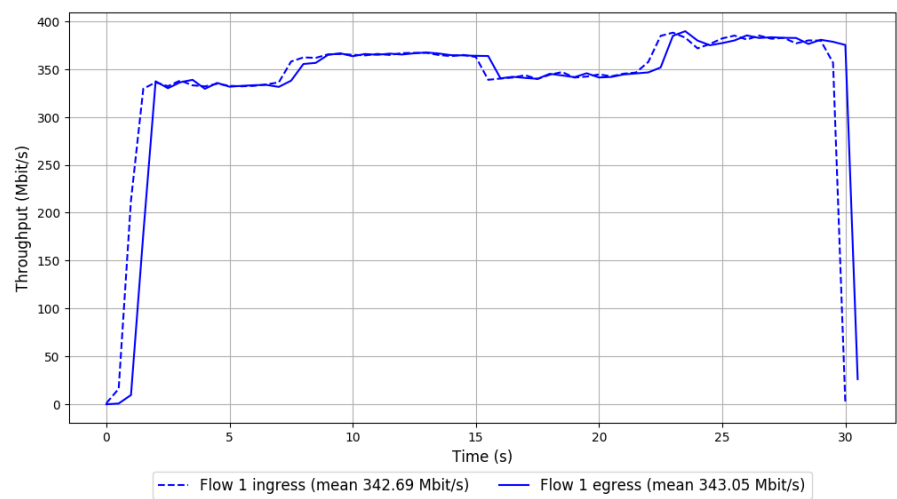

Flow 1 (95th percentile 152.48 ms)

```
Run 5: Statistics of TCP BBR

Start at: 2019-01-03 17:40:33
End at: 2019-01-03 17:41:03
Local clock offset: -0.052 ms
Remote clock offset: -0.12 ms


# Below is generated by plot.py at 2019-01-03 18:25:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 512.47 Mbit/s
95th percentile per-packet one-way delay: 147.011 ms
Loss rate: 0.60%
-- Flow 1:
Average throughput: 512.47 Mbit/s
95th percentile per-packet one-way delay: 147.011 ms
Loss rate: 0.60%
```

Run 5: Report of TCP BBR — Data Link

Flow 1 ingress (mean 515.54 Mbit/s) --- Flow 1 egress (mean 512.47 Mbit/s)
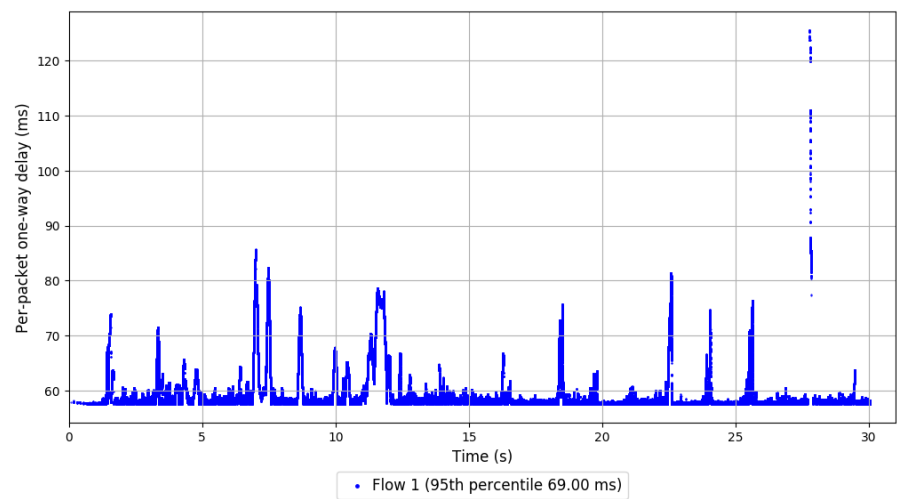

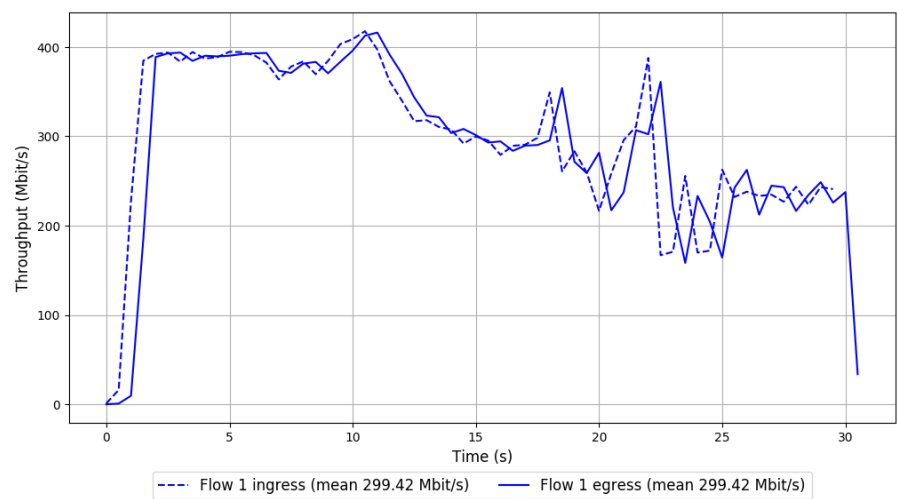Flow 1 (95th percentile 147.01 ms)

14

```
Run 1: Statistics of Copa

Start at: 2019-01-03 15:59:29
End at: 2019-01-03 15:59:59
Local clock offset: -0.508 ms
Remote clock offset: 0.072 ms


# Below is generated by plot.py at 2019-01-03 18:26:25
# Datalink statistics
-- Total of 1 flow:
Average throughput: 324.77 Mbit/s
95th percentile per-packet one-way delay: 63.288 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 324.77 Mbit/s
95th percentile per-packet one-way delay: 63.288 ms
Loss rate: 0.00%
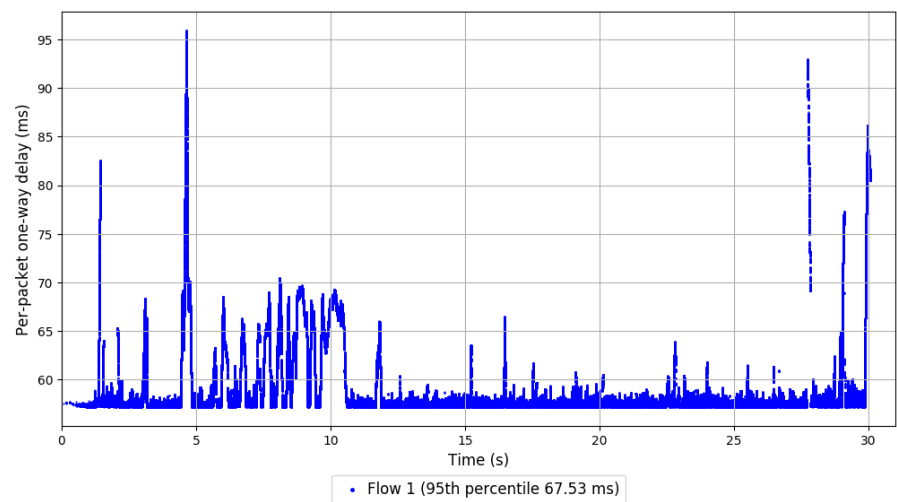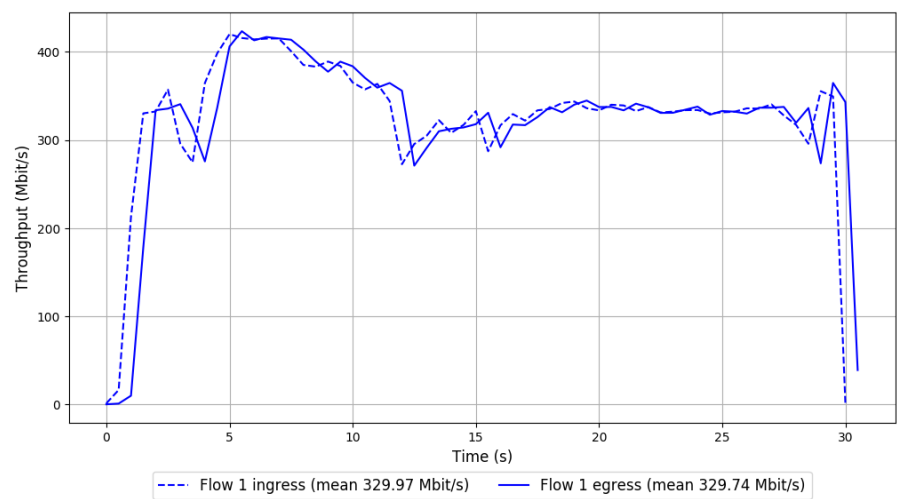```

Run 1: Report of Copa — Data Link

```
Run 2: Statistics of Copa

Start at: 2019-01-03 16:27:53
End at: 2019-01-03 16:28:23
Local clock offset: -0.158 ms
Remote clock offset: -0.063 ms

# Below is generated by plot.py at 2019-01-03 18:27:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 343.05 Mbit/s
95th percentile per-packet one-way delay: 61.087 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 343.05 Mbit/s
95th percentile per-packet one-way delay: 61.087 ms
Loss rate: 0.00%
```

Run 2: Report of Copa — Data Link

```
Run 3: Statistics of Copa

Start at: 2019-01-03 16:56:20
End at: 2019-01-03 16:56:50
Local clock offset: -0.5 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2019-01-03 18:27:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 299.42 Mbit/s
95th percentile per-packet one-way delay: 69.004 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 299.42 Mbit/s
95th percentile per-packet one-way delay: 69.004 ms
Loss rate: 0.00%
```
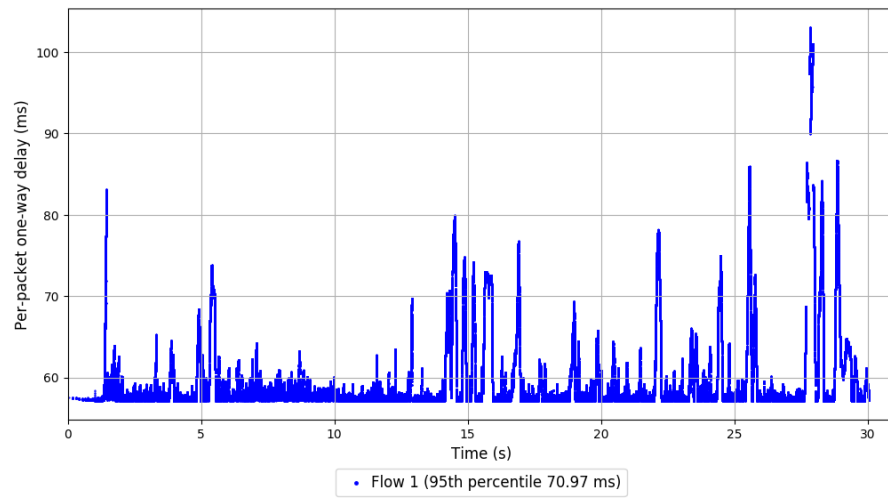
Run 3: Report of Copa — Data Link

```
Run 4: Statistics of Copa

Start at: 2019-01-03 17:24:33
End at: 2019-01-03 17:25:03
Local clock offset: -0.299 ms
Remote clock offset: -0.169 ms


# Below is generated by plot.py at 2019-01-03 18:38:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 329.74 Mbit/s
95th percentile per-packet one-way delay: 67.530 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 329.74 Mbit/s
95th percentile per-packet one-way delay: 67.530 ms
Loss rate: 0.06%
```
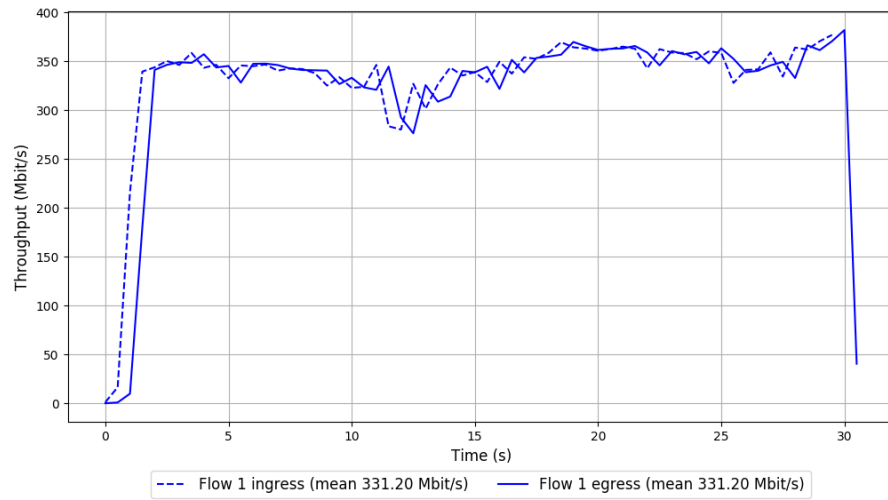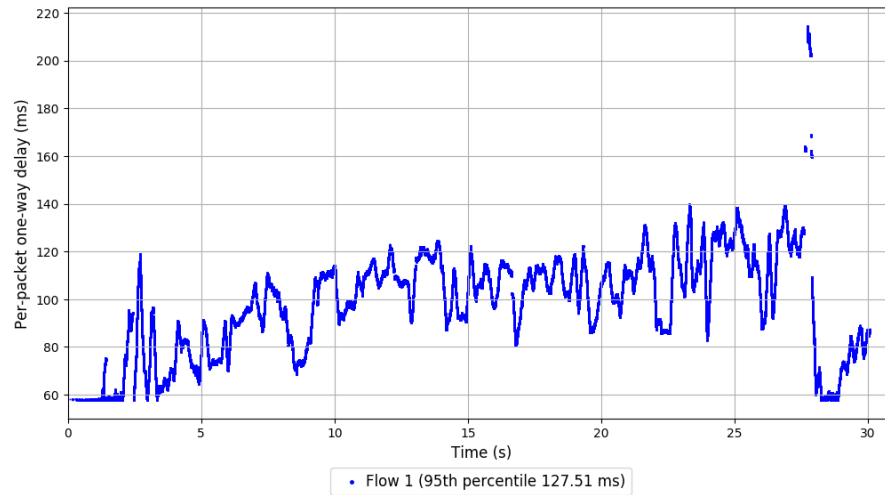
Run 4: Report of Copa — Data Link

Flow 1 ingress (mean 329.97 Mbit/s)   Flow 1 egress (mean 329.74 Mbit/s)

Flow 1 (95th percentile 67.53 ms)

```
Run 5: Statistics of Copa

Start at: 2019-01-03 17:52:32
End at: 2019-01-03 17:53:02
Local clock offset: -0.089 ms
Remote clock offset: 0.122 ms


# Below is generated by plot.py at 2019-01-03 18:39:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 331.20 Mbit/s
95th percentile per-packet one-way delay: 70.968 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 331.20 Mbit/s
95th percentile per-packet one-way delay: 70.968 ms
Loss rate: 0.00%
```
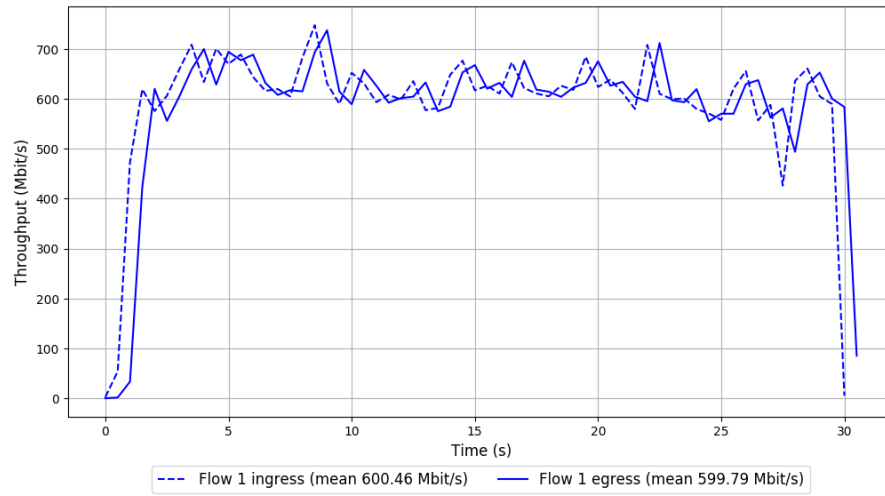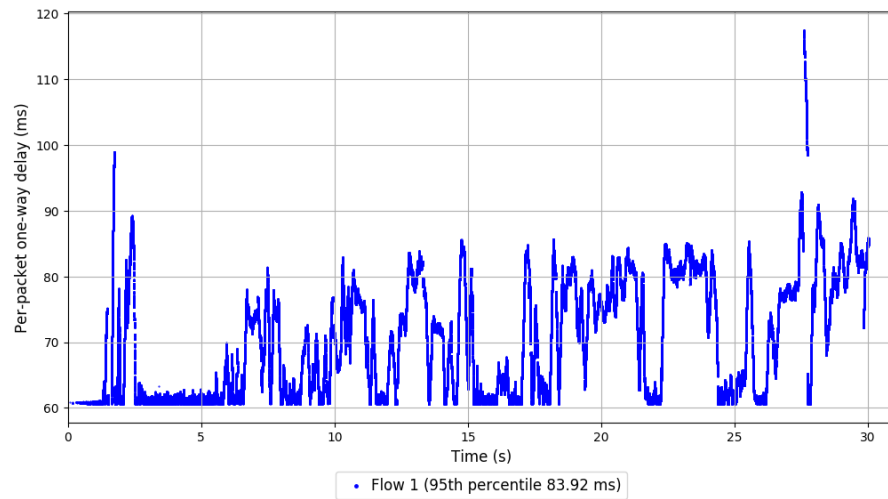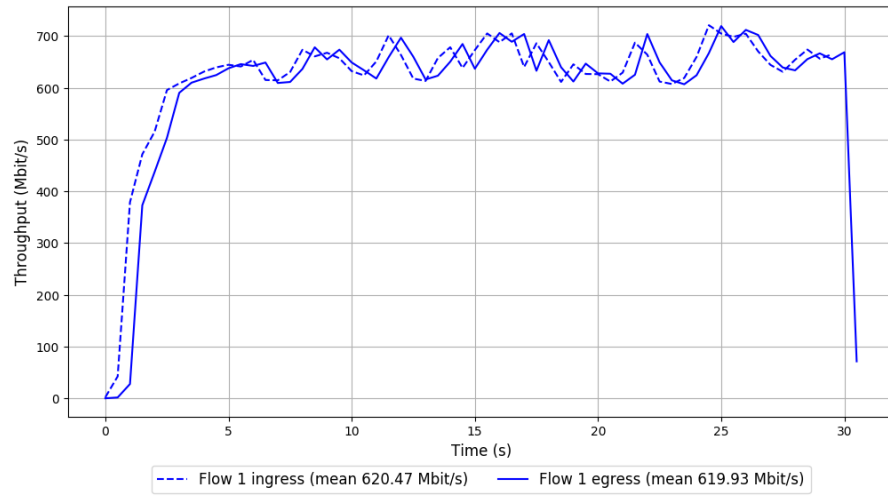
Run 5: Report of Copa — Data Link

```
Run 1: Statistics of TCP Cubic

Start at: 2019-01-03 16:01:08
End at: 2019-01-03 16:01:38
Local clock offset: -0.096 ms
Remote clock offset: 0.542 ms


# Below is generated by plot.py at 2019-01-03 18:39:19
# Datalink statistics
-- Total of 1 flow:
Average throughput: 599.79 Mbit/s
95th percentile per-packet one-way delay: 127.514 ms
Loss rate: 0.07%
-- Flow 1:
Average throughput: 599.79 Mbit/s
95th percentile per-packet one-way delay: 127.514 ms
Loss rate: 0.07%
```
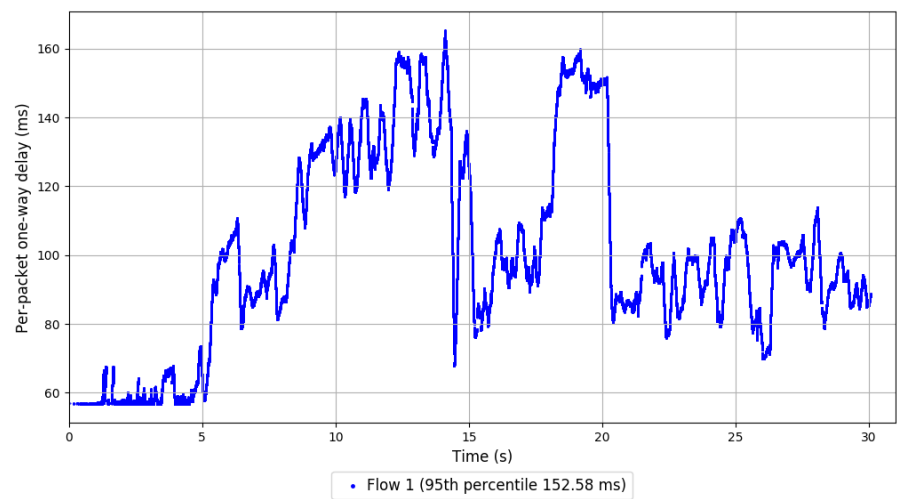
Run 1: Report of TCP Cubic — Data Link

```
Run 2: Statistics of TCP Cubic

Start at: 2019-01-03 16:29:31
End at: 2019-01-03 16:30:01
Local clock offset: -0.577 ms
Remote clock offset: -0.104 ms


# Below is generated by plot.py at 2019-01-03 18:39:30
# Datalink statistics
-- Total of 1 flow:
Average throughput: 619.93 Mbit/s
95th percentile per-packet one-way delay: 83.924 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 619.93 Mbit/s
95th percentile per-packet one-way delay: 83.924 ms
Loss rate: 0.10%
```

Run 2: Report of TCP Cubic — Data Link

```
Run 3: Statistics of TCP Cubic

Start at: 2019-01-03 16:57:55
End at: 2019-01-03 16:58:25
Local clock offset: 0.069 ms
Remote clock offset: -0.28 ms


# Below is generated by plot.py at 2019-01-03 18:40:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 637.59 Mbit/s
95th percentile per-packet one-way delay: 152.584 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 637.59 Mbit/s
95th percentile per-packet one-way delay: 152.584 ms
Loss rate: 0.12%
```
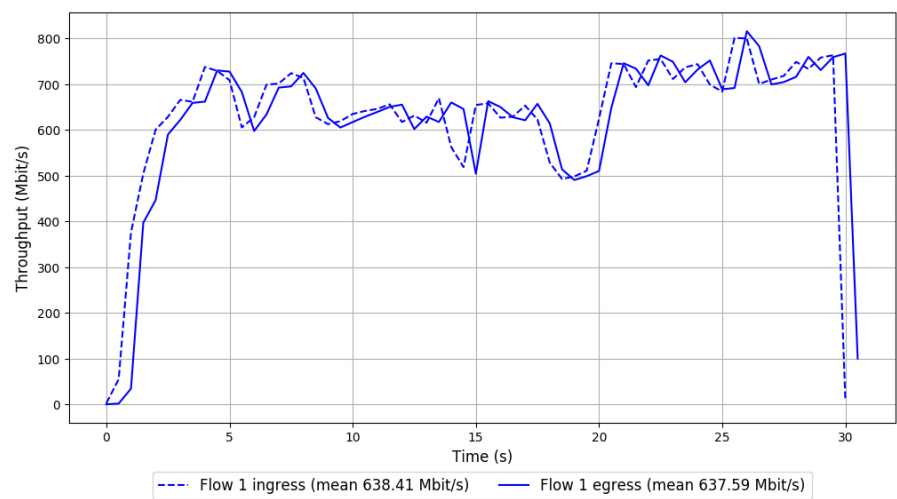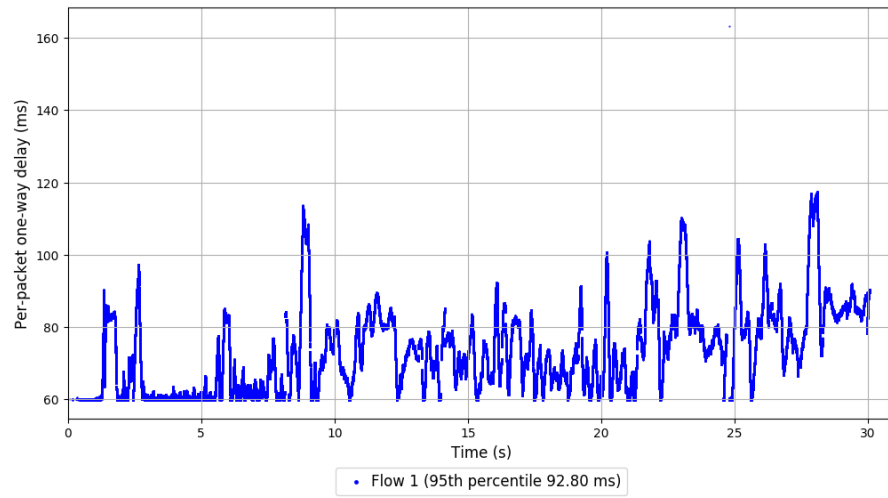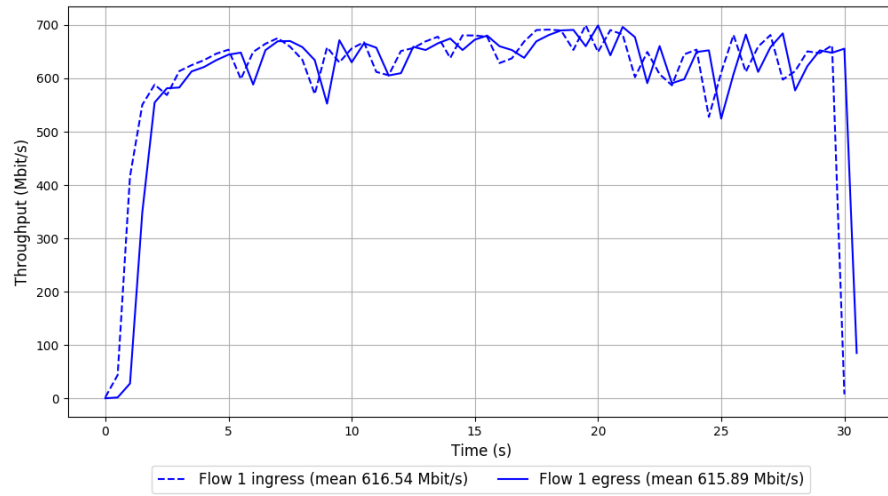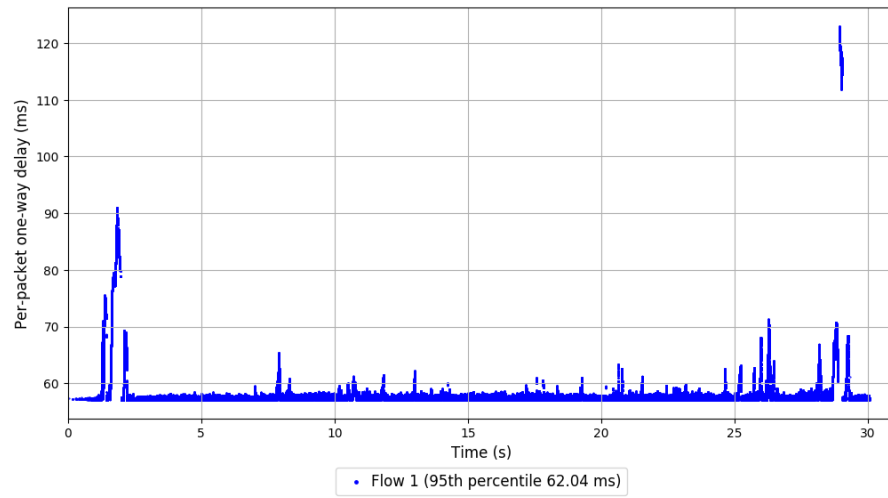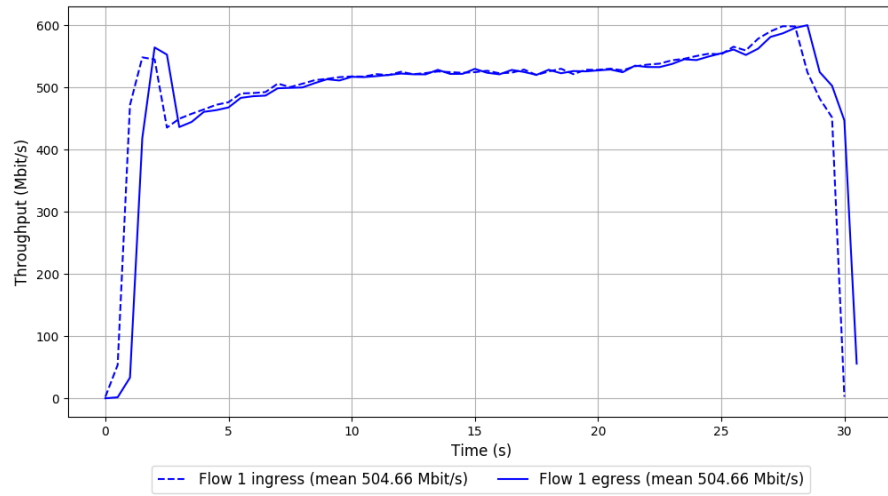
Run 3: Report of TCP Cubic — Data Link

```
Run 4: Statistics of TCP Cubic

Start at: 2019-01-03 17:26:12
End at: 2019-01-03 17:26:42
Local clock offset: 0.185 ms
Remote clock offset: -0.152 ms


# Below is generated by plot.py at 2019-01-03 18:40:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 615.89 Mbit/s
95th percentile per-packet one-way delay: 92.804 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 615.89 Mbit/s
95th percentile per-packet one-way delay: 92.804 ms
Loss rate: 0.10%
```

Run 4: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 616.54 Mbit/s)   Flow 1 egress (mean 615.89 Mbit/s)

Flow 1 (95th percentile 92.80 ms)

```
Run 5: Statistics of TCP Cubic

Start at: 2019-01-03 17:54:11
End at: 2019-01-03 17:54:42
Local clock offset: -0.117 ms
Remote clock offset: -0.043 ms


# Below is generated by plot.py at 2019-01-03 18:40:00
# Datalink statistics
-- Total of 1 flow:
Average throughput: 504.66 Mbit/s
95th percentile per-packet one-way delay: 62.044 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 504.66 Mbit/s
95th percentile per-packet one-way delay: 62.044 ms
Loss rate: 0.00%
```
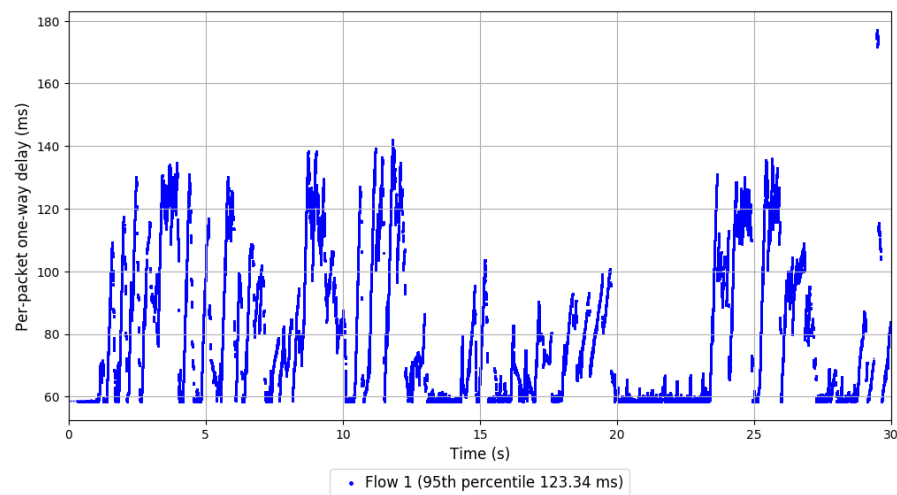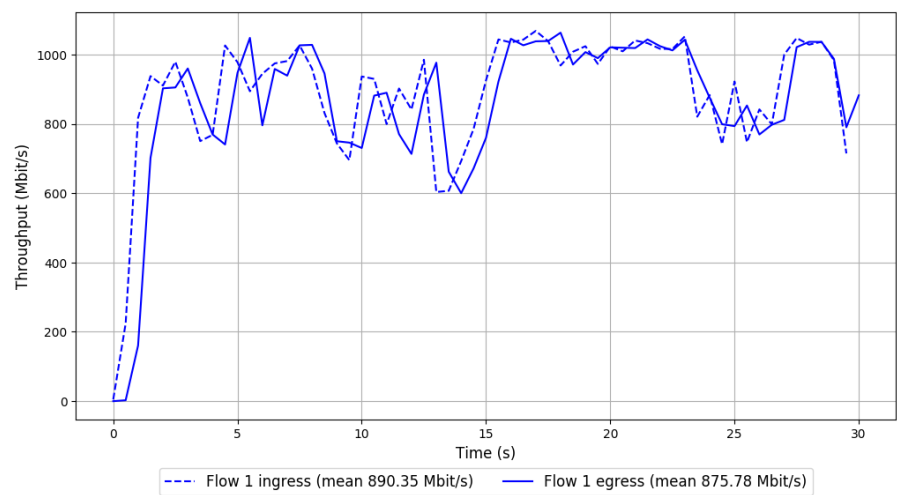
Run 5: Report of TCP Cubic — Data Link

Flow 1 ingress (mean 504.66 Mbit/s) --- Flow 1 egress (mean 504.66 Mbit/s)
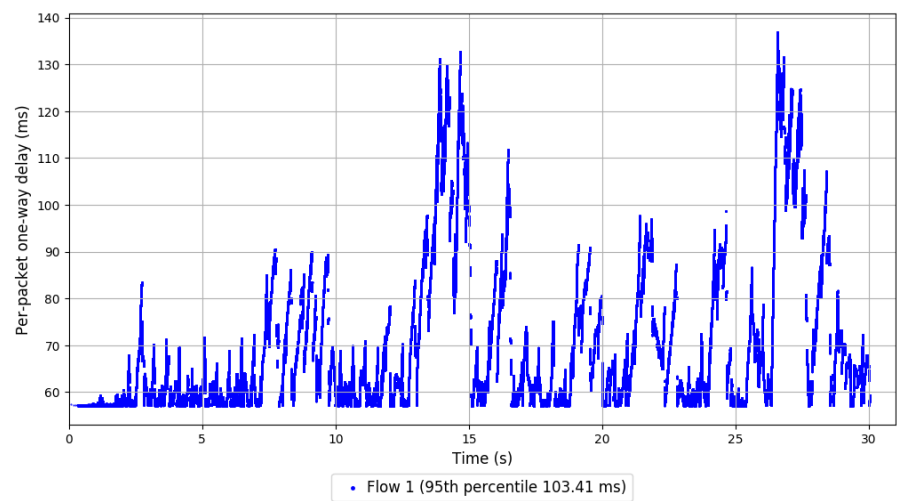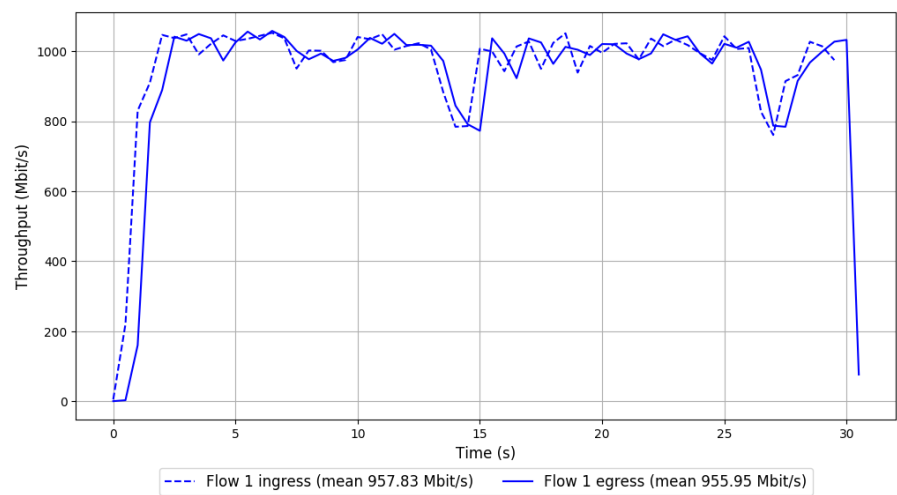
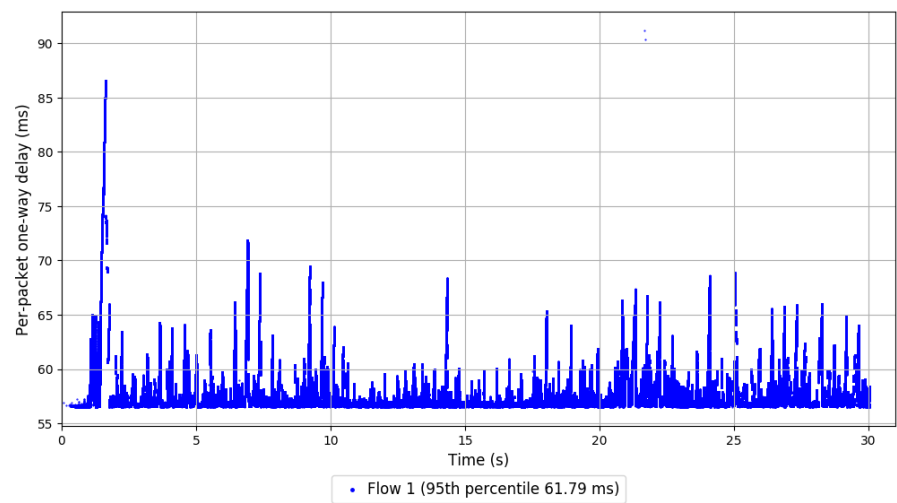

• Flow 1 (95th percentile 62.04 ms)

```
Run 1: Statistics of FillP

Start at: 2019-01-03 16:02:45
End at: 2019-01-03 16:03:15
Local clock offset: -0.071 ms
Remote clock offset: 1.249 ms


# Below is generated by plot.py at 2019-01-03 18:49:22
# Datalink statistics
-- Total of 1 flow:
Average throughput: 875.78 Mbit/s
95th percentile per-packet one-way delay: 123.342 ms
Loss rate: 1.63%
-- Flow 1:
Average throughput: 875.78 Mbit/s
95th percentile per-packet one-way delay: 123.342 ms
Loss rate: 1.63%
```

Run 1: Report of FillP — Data Link

Flow 1 ingress (mean 890.35 Mbit/s) ----- Flow 1 egress (mean 875.78 Mbit/s) ——
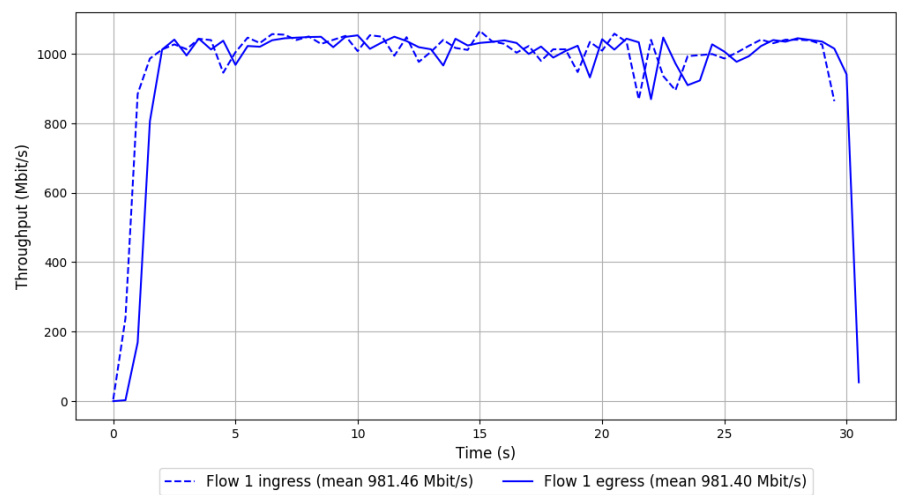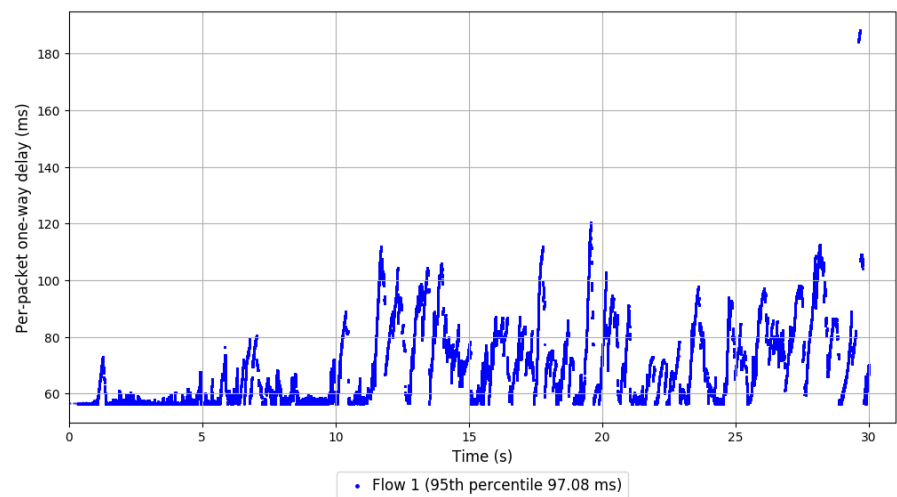

Flow 1 (95th percentile 123.34 ms)

```
Run 2: Statistics of FillP

Start at: 2019-01-03 16:31:10
End at: 2019-01-03 16:31:40
Local clock offset: 0.105 ms
Remote clock offset: -0.096 ms


# Below is generated by plot.py at 2019-01-03 19:04:59
# Datalink statistics
-- Total of 1 flow:
Average throughput: 955.95 Mbit/s
95th percentile per-packet one-way delay: 103.414 ms
Loss rate: 0.19%
-- Flow 1:
Average throughput: 955.95 Mbit/s
95th percentile per-packet one-way delay: 103.414 ms
Loss rate: 0.19%
```

Run 2: Report of FillP — Data Link

Flow 1 ingress (mean 957.83 Mbit/s)   Flow 1 egress (mean 955.95 Mbit/s)

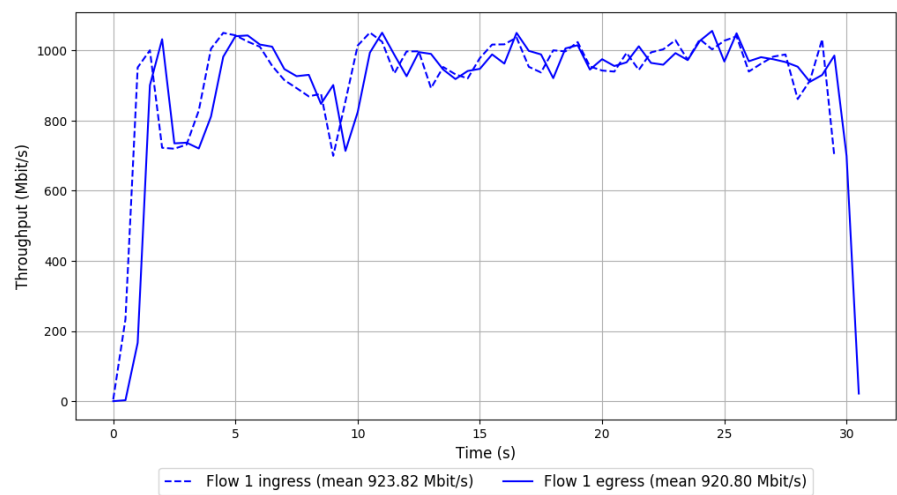• Flow 1 (95th percentile 103.41 ms)

```
Run 3: Statistics of FillP

Start at: 2019-01-03 16:59:36
End at: 2019-01-03 17:00:06
Local clock offset: 0.148 ms
Remote clock offset: -0.347 ms


# Below is generated by plot.py at 2019-01-03 19:06:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 981.40 Mbit/s
95th percentile per-packet one-way delay: 61.793 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 981.40 Mbit/s
95th percentile per-packet one-way delay: 61.793 ms
Loss rate: 0.00%
```
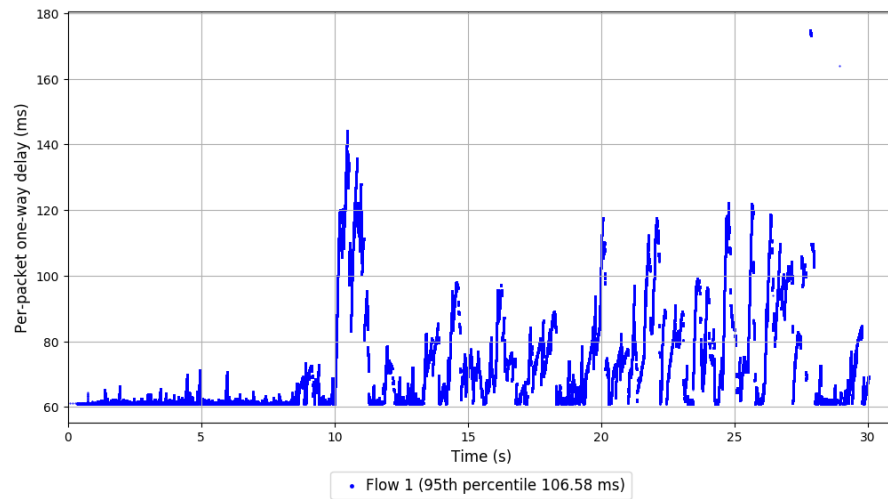
Run 3: Report of FillP — Data Link

Flow 1 ingress (mean 981.46 Mbit/s)   Flow 1 egress (mean 981.40 Mbit/s)

Flow 1 (95th percentile 61.79 ms)

```
Run 4: Statistics of FillP

Start at: 2019-01-03 17:27:51
End at: 2019-01-03 17:28:21
Local clock offset: 0.287 ms
Remote clock offset: -0.262 ms


# Below is generated by plot.py at 2019-01-03 19:06:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 920.80 Mbit/s
95th percentile per-packet one-way delay: 97.080 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 920.80 Mbit/s
95th percentile per-packet one-way delay: 97.080 ms
Loss rate: 0.31%
```
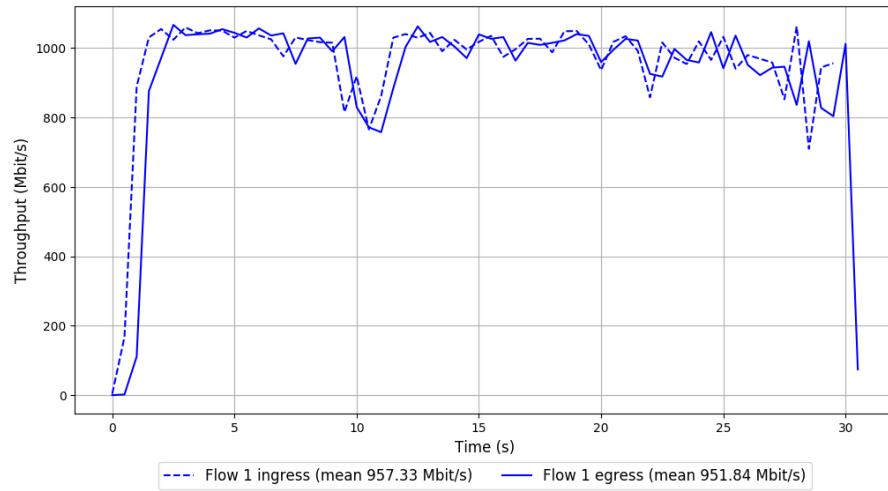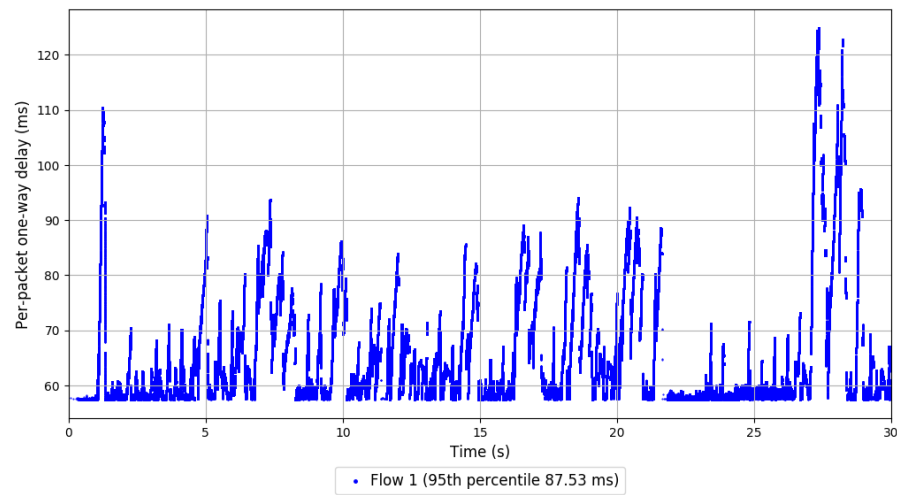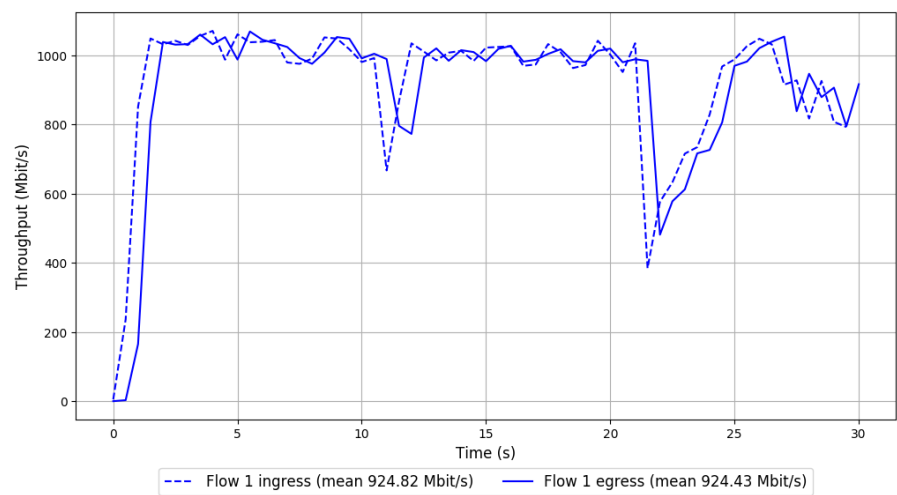
Run 4: Report of FillP — Data Link

```
Run 5: Statistics of FillP

Start at: 2019-01-03 17:55:45
End at: 2019-01-03 17:56:15
Local clock offset: -0.525 ms
Remote clock offset: 0.195 ms


# Below is generated by plot.py at 2019-01-03 19:06:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 951.84 Mbit/s
95th percentile per-packet one-way delay: 106.583 ms
Loss rate: 0.58%
-- Flow 1:
Average throughput: 951.84 Mbit/s
95th percentile per-packet one-way delay: 106.583 ms
Loss rate: 0.58%
```
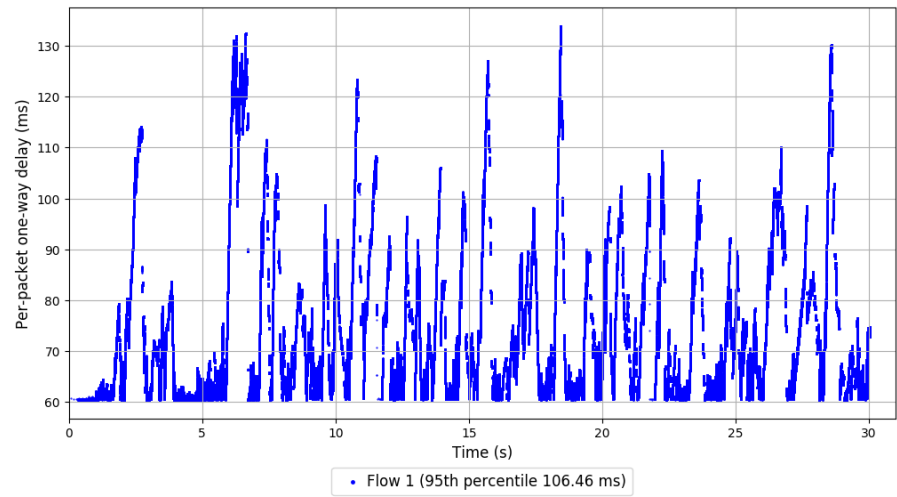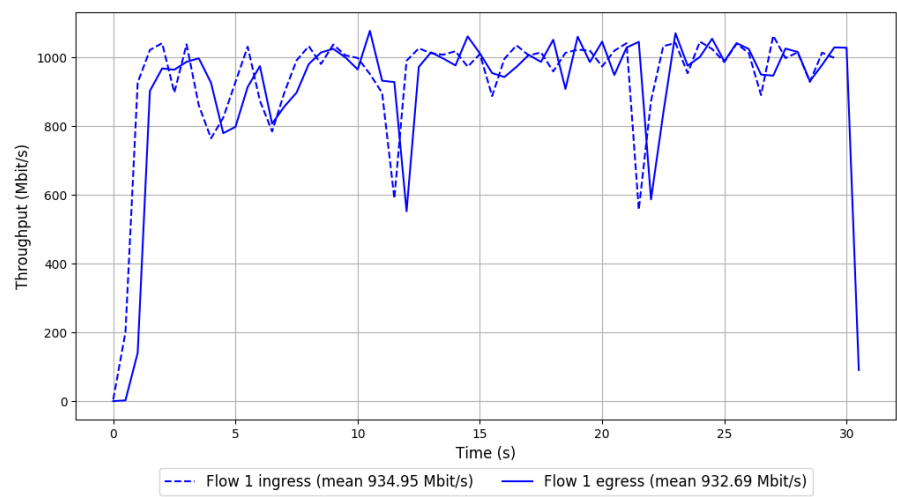
Run 5: Report of FillP — Data Link

Flow 1 ingress (mean 957.33 Mbit/s)   Flow 1 egress (mean 951.84 Mbit/s)
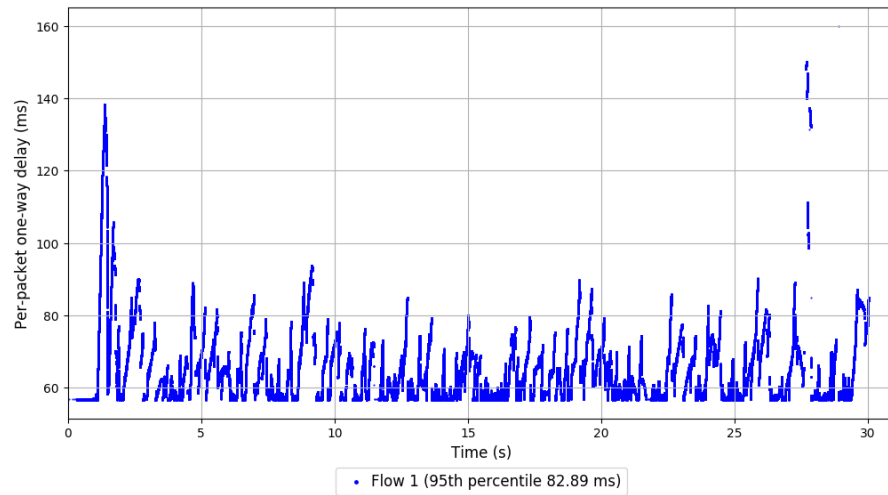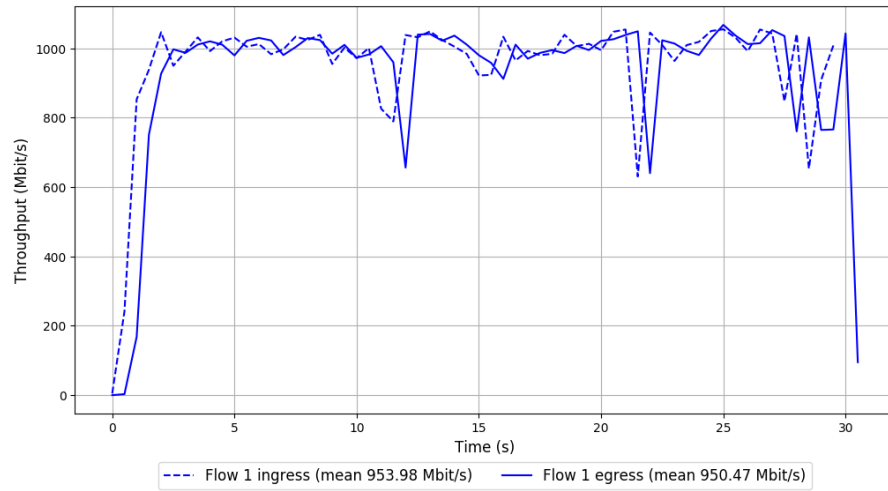

Flow 1 (95th percentile 106.58 ms)

```
Run 1: Statistics of FillP-Sheep

Start at: 2019-01-03 15:50:35
End at: 2019-01-03 15:51:05
Local clock offset: -0.537 ms
Remote clock offset: -0.123 ms


# Below is generated by plot.py at 2019-01-03 19:06:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 924.43 Mbit/s
95th percentile per-packet one-way delay: 87.530 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 924.43 Mbit/s
95th percentile per-packet one-way delay: 87.530 ms
Loss rate: 0.04%
```

Run 1: Report of FillP-Sheep — Data Link

Flow 1 ingress (mean 924.82 Mbit/s)   Flow 1 egress (mean 924.43 Mbit/s)

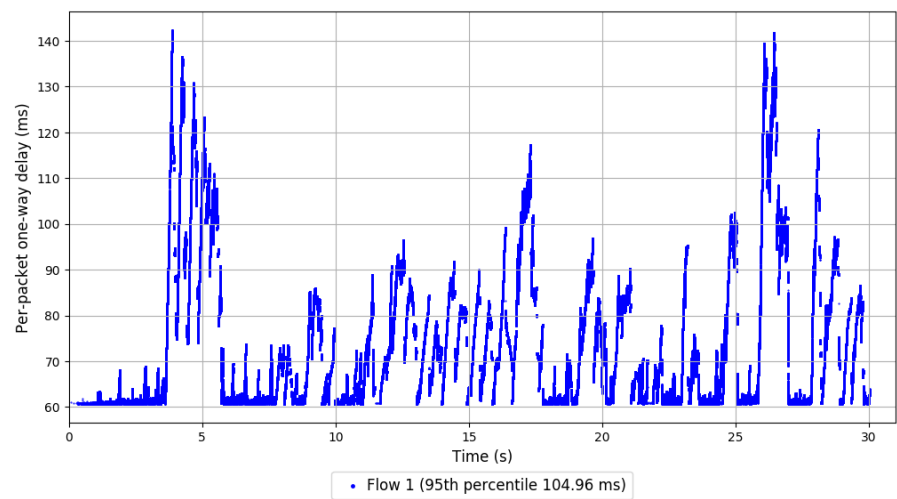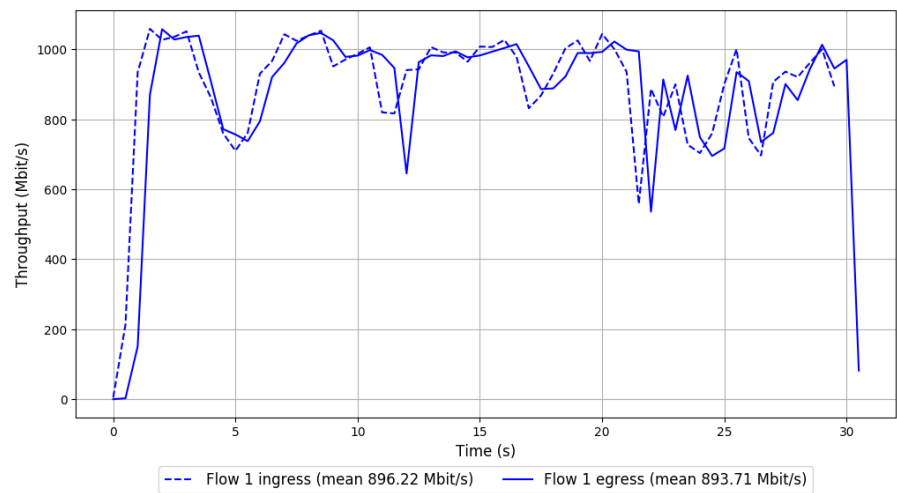

• Flow 1 (95th percentile 87.53 ms)

```
Run 2: Statistics of FillP-Sheep

Start at: 2019-01-03 16:19:01
End at: 2019-01-03 16:19:31
Local clock offset: -0.125 ms
Remote clock offset: -0.108 ms


# Below is generated by plot.py at 2019-01-03 19:06:20
# Datalink statistics
-- Total of 1 flow:
Average throughput: 932.69 Mbit/s
95th percentile per-packet one-way delay: 106.464 ms
Loss rate: 0.25%
-- Flow 1:
Average throughput: 932.69 Mbit/s
95th percentile per-packet one-way delay: 106.464 ms
Loss rate: 0.25%
```

Run 2: Report of FillP-Sheep — Data Link

```
Run 3: Statistics of FillP-Sheep

Start at: 2019-01-03 16:47:28
End at: 2019-01-03 16:47:58
Local clock offset: 0.059 ms
Remote clock offset: -0.254 ms


# Below is generated by plot.py at 2019-01-03 19:06:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 950.47 Mbit/s
95th percentile per-packet one-way delay: 82.890 ms
Loss rate: 0.35%
-- Flow 1:
Average throughput: 950.47 Mbit/s
95th percentile per-packet one-way delay: 82.890 ms
Loss rate: 0.35%
```
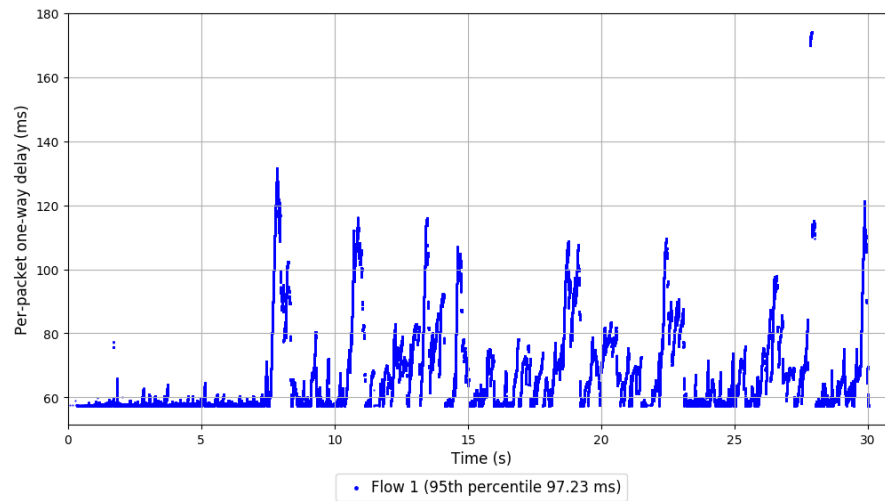
Run 3: Report of FillP-Sheep — Data Link

```
Run 4: Statistics of FillP-Sheep

Start at: 2019-01-03 17:15:49
End at: 2019-01-03 17:16:19
Local clock offset: -0.481 ms
Remote clock offset: -0.116 ms


# Below is generated by plot.py at 2019-01-03 19:16:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 893.71 Mbit/s
95th percentile per-packet one-way delay: 104.957 ms
Loss rate: 0.28%
-- Flow 1:
Average throughput: 893.71 Mbit/s
95th percentile per-packet one-way delay: 104.957 ms
Loss rate: 0.28%
```
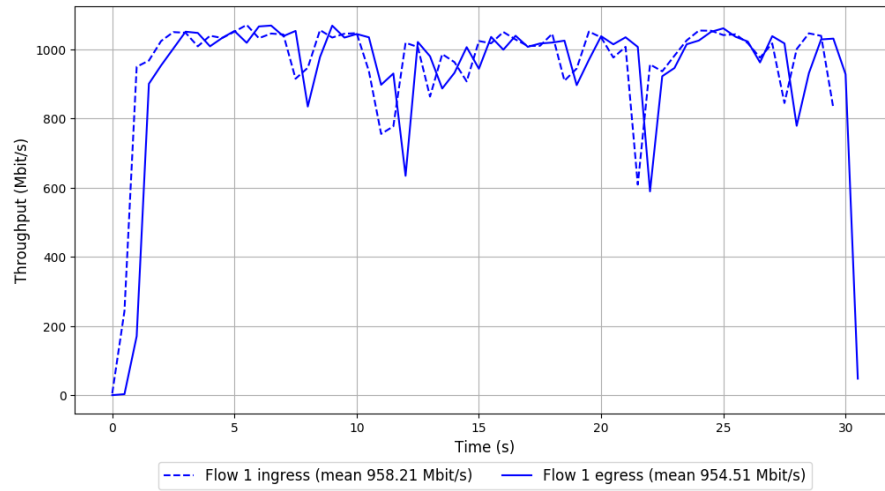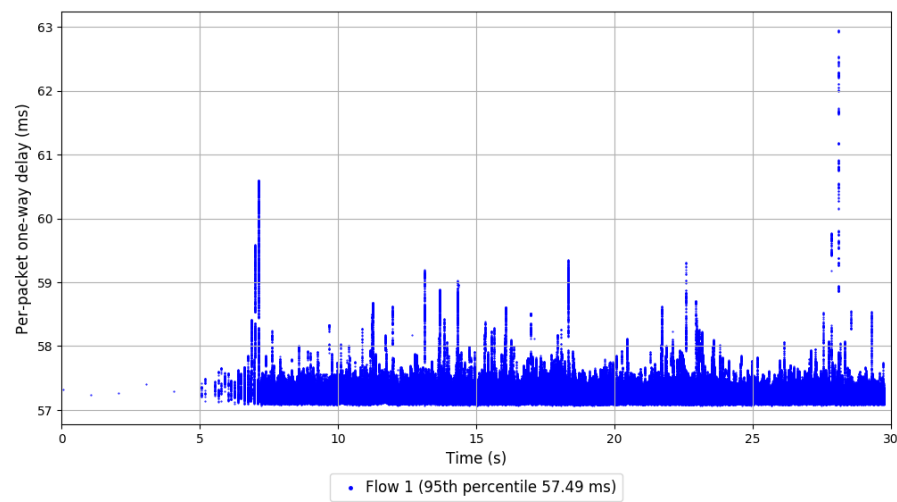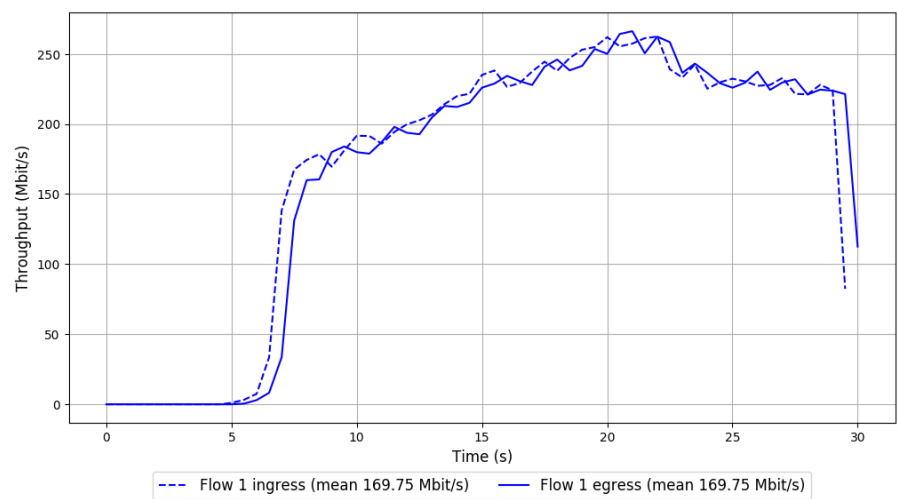
Run 4: Report of FillP-Sheep — Data Link

```
Run 5: Statistics of FillP-Sheep

Start at: 2019-01-03 17:43:47
End at: 2019-01-03 17:44:17
Local clock offset: -0.463 ms
Remote clock offset: 0.11 ms


# Below is generated by plot.py at 2019-01-03 19:31:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 954.51 Mbit/s
95th percentile per-packet one-way delay: 97.232 ms
Loss rate: 0.39%
-- Flow 1:
Average throughput: 954.51 Mbit/s
95th percentile per-packet one-way delay: 97.232 ms
Loss rate: 0.39%
```
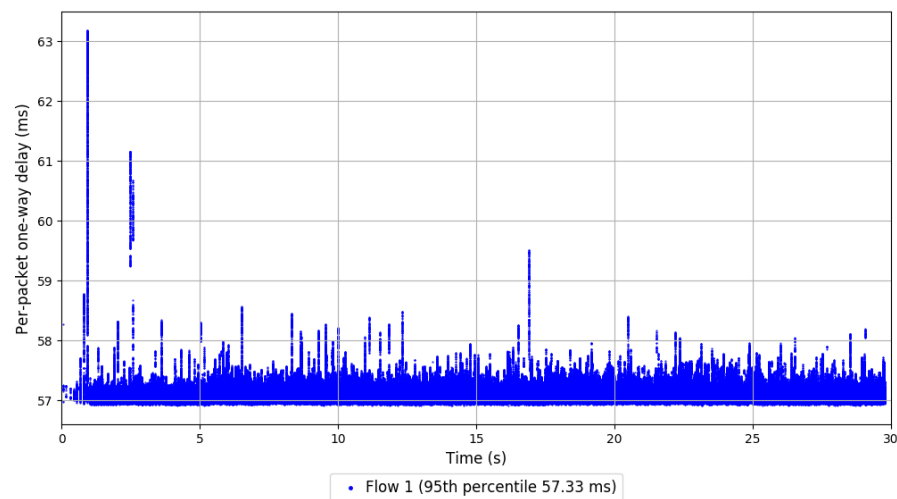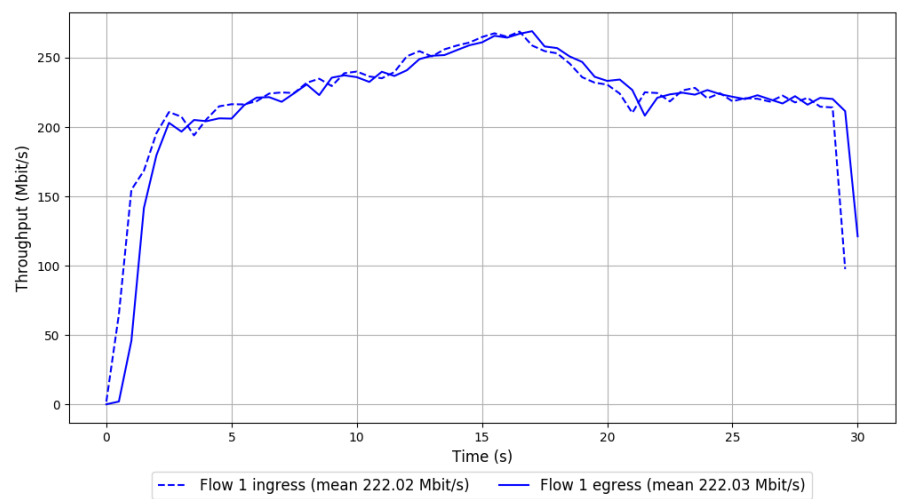
Run 5: Report of FillP-Sheep — Data Link

```
Run 1: Statistics of Indigo

Start at: 2019-01-03 15:42:52
End at: 2019-01-03 15:43:22
Local clock offset: -0.518 ms
Remote clock offset: -0.716 ms


# Below is generated by plot.py at 2019-01-03 19:31:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 169.75 Mbit/s
95th percentile per-packet one-way delay: 57.486 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 169.75 Mbit/s
95th percentile per-packet one-way delay: 57.486 ms
Loss rate: 0.00%
```
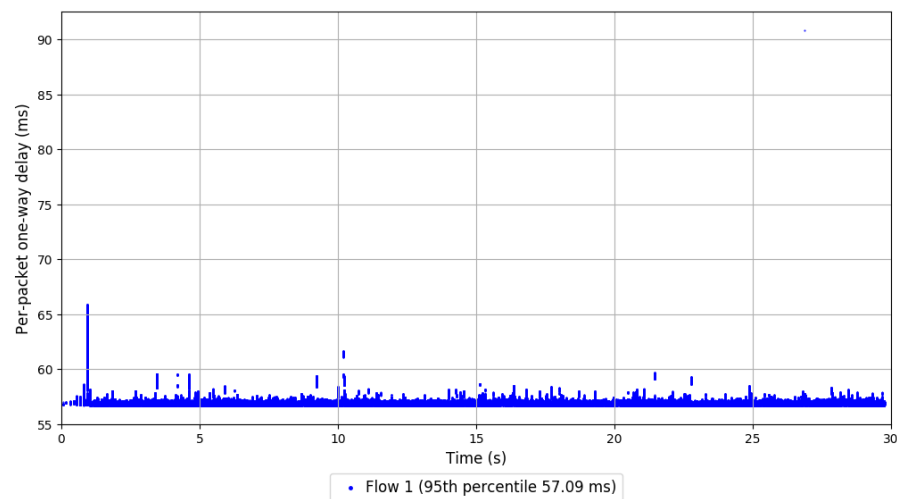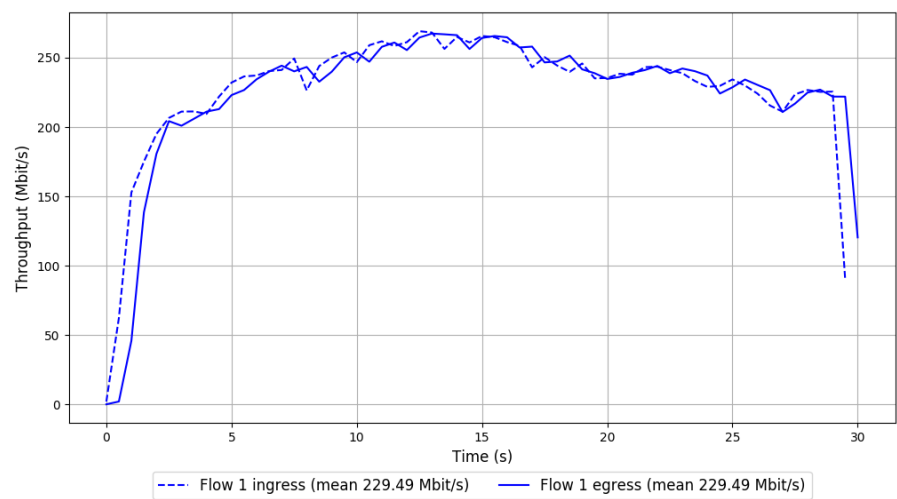
Run 1: Report of Indigo — Data Link

```
Run 2: Statistics of Indigo

Start at: 2019-01-03 16:11:10
End at: 2019-01-03 16:11:40
Local clock offset: -0.512 ms
Remote clock offset: -0.322 ms


# Below is generated by plot.py at 2019-01-03 19:31:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 222.03 Mbit/s
95th percentile per-packet one-way delay: 57.334 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 222.03 Mbit/s
95th percentile per-packet one-way delay: 57.334 ms
Loss rate: 0.00%
```

Run 2: Report of Indigo — Data Link

```
Run 3: Statistics of Indigo

Start at: 2019-01-03 16:39:30
End at: 2019-01-03 16:40:00
Local clock offset: -0.148 ms
Remote clock offset: -0.077 ms


# Below is generated by plot.py at 2019-01-03 19:31:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 229.49 Mbit/s
95th percentile per-packet one-way delay: 57.091 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 229.49 Mbit/s
95th percentile per-packet one-way delay: 57.091 ms
Loss rate: 0.00%
```
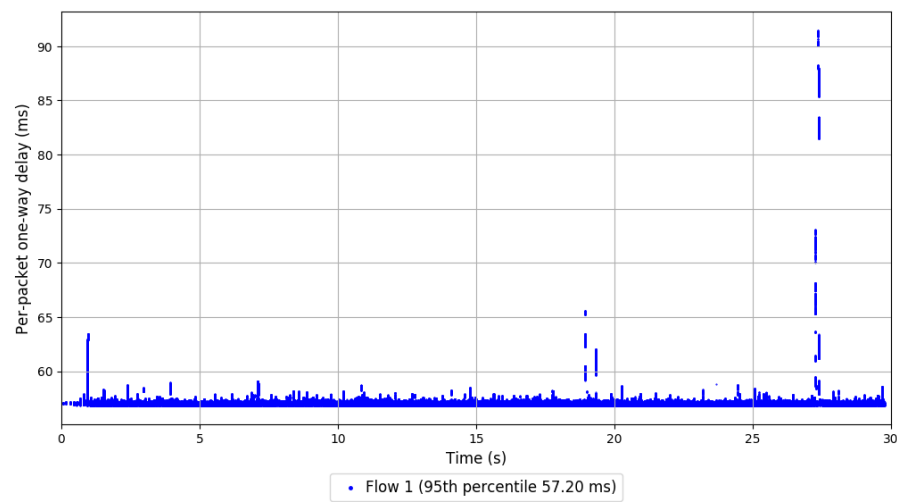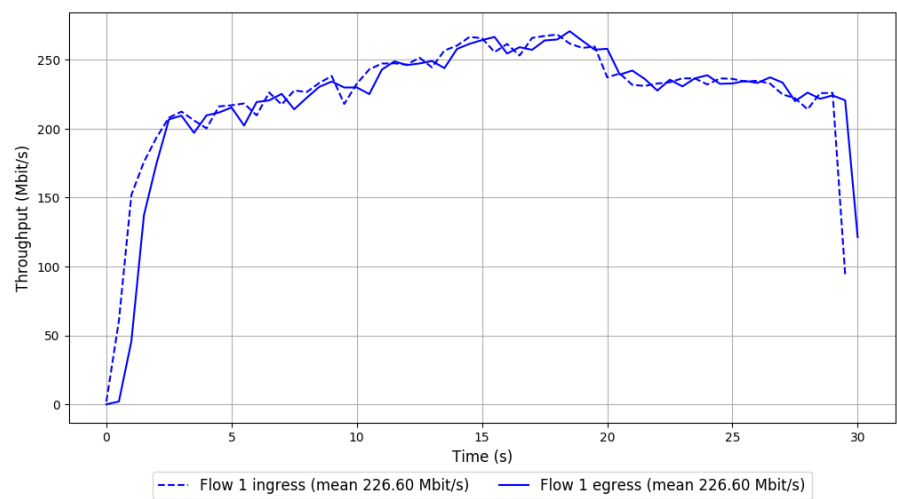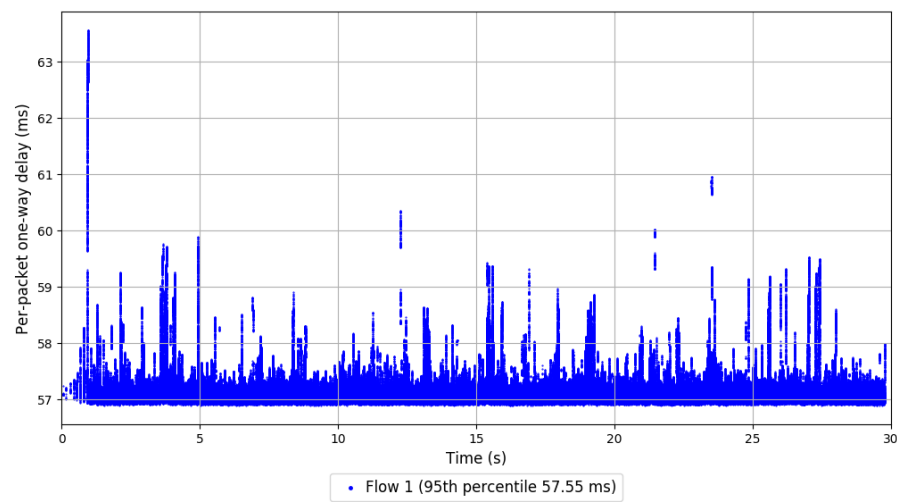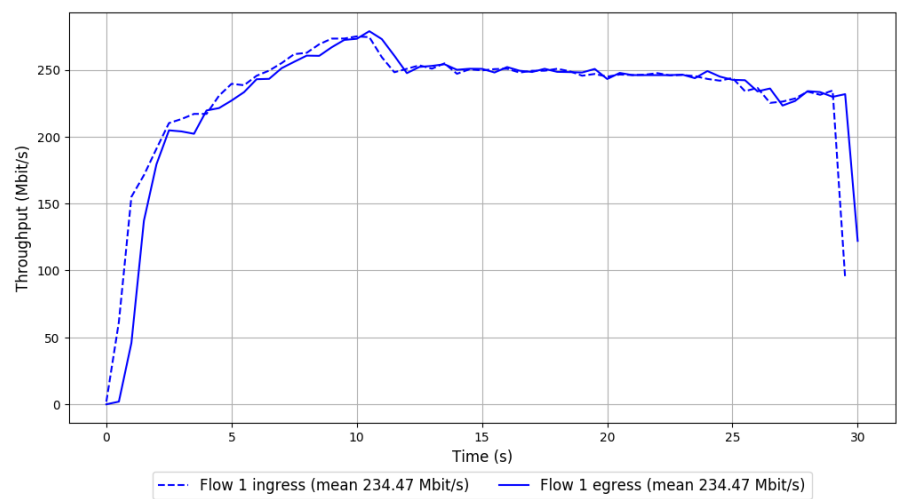
Run 3: Report of Indigo — Data Link

Flow 1 ingress (mean 229.49 Mbit/s)   Flow 1 egress (mean 229.49 Mbit/s)

• Flow 1 (95th percentile 57.09 ms)

```
Run 4: Statistics of Indigo

Start at: 2019-01-03 17:08:00
End at: 2019-01-03 17:08:30
Local clock offset: 0.075 ms
Remote clock offset: 0.048 ms


# Below is generated by plot.py at 2019-01-03 19:31:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 226.60 Mbit/s
95th percentile per-packet one-way delay: 57.195 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 226.60 Mbit/s
95th percentile per-packet one-way delay: 57.195 ms
Loss rate: 0.00%
```

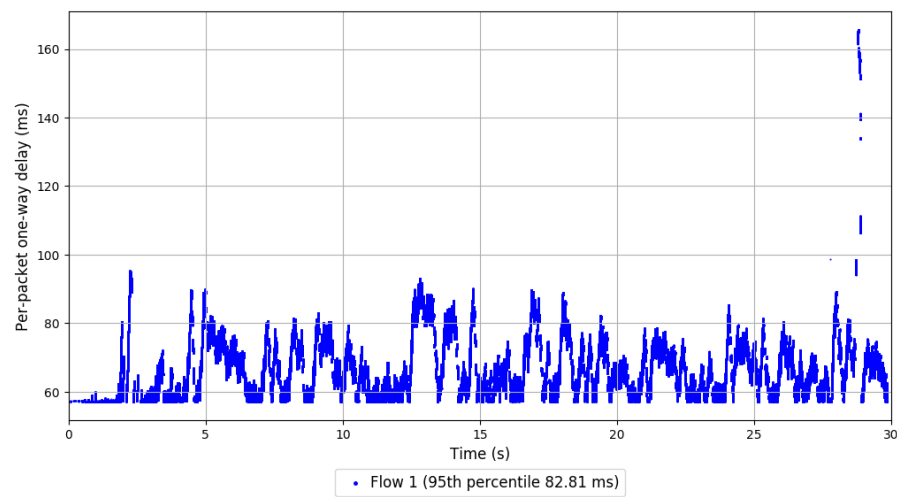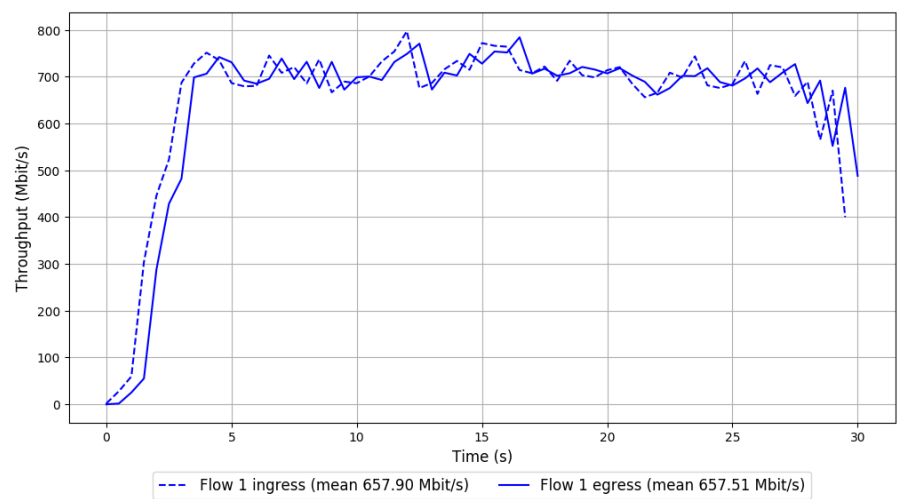Run 4: Report of Indigo — Data Link

```
Run 5: Statistics of Indigo

Start at: 2019-01-03 17:36:05
End at: 2019-01-03 17:36:35
Local clock offset: -0.302 ms
Remote clock offset: -0.224 ms


# Below is generated by plot.py at 2019-01-03 19:31:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 234.47 Mbit/s
95th percentile per-packet one-way delay: 57.551 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 234.47 Mbit/s
95th percentile per-packet one-way delay: 57.551 ms
Loss rate: 0.00%
```

Run 5: Report of Indigo — Data Link

```
Run 1: Statistics of Indigo-MusesD

Start at: 2019-01-03 15:48:55
End at: 2019-01-03 15:49:25
Local clock offset: -0.032 ms
Remote clock offset: 0.108 ms


# Below is generated by plot.py at 2019-01-03 19:31:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 657.51 Mbit/s
95th percentile per-packet one-way delay: 82.814 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 657.51 Mbit/s
95th percentile per-packet one-way delay: 82.814 ms
Loss rate: 0.05%
```
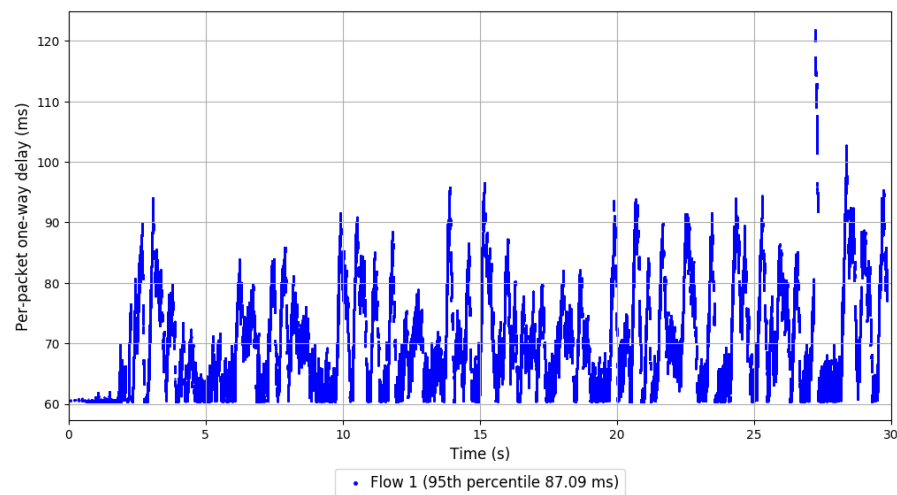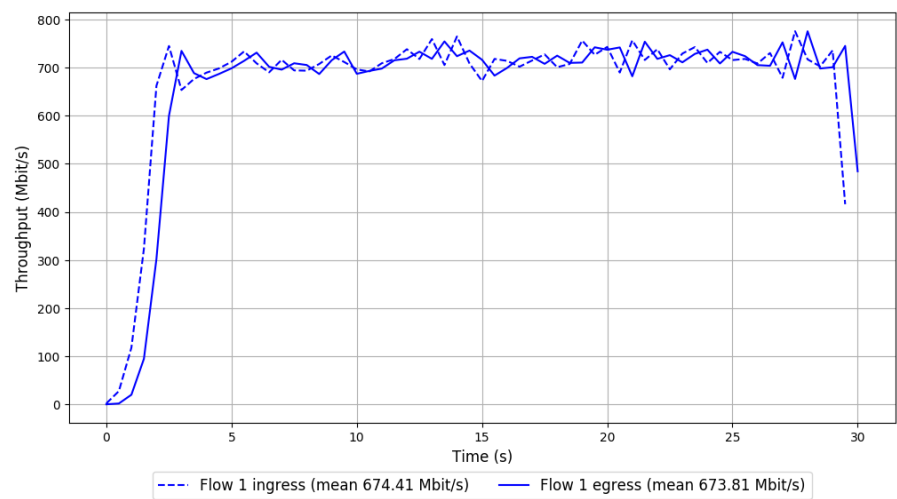
Run 1: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 657.90 Mbit/s)   Flow 1 egress (mean 657.51 Mbit/s)
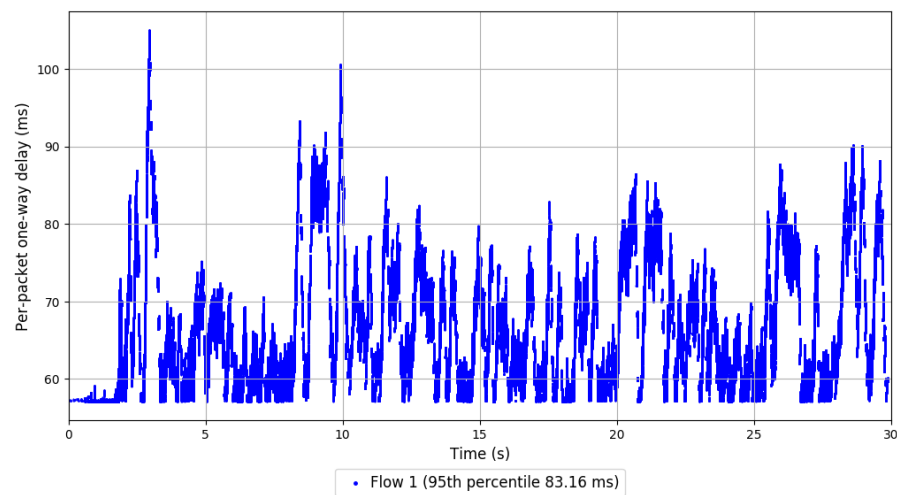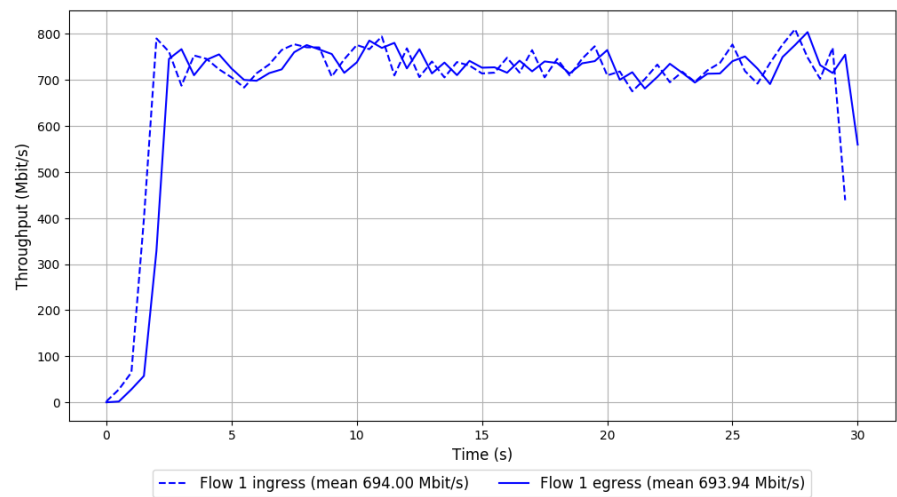

Flow 1 (95th percentile 82.81 ms)

```
Run 2: Statistics of Indigo-MusesD

Start at: 2019-01-03 16:17:20
End at: 2019-01-03 16:17:50
Local clock offset: -0.1 ms
Remote clock offset: 0.112 ms


# Below is generated by plot.py at 2019-01-03 19:31:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 673.81 Mbit/s
95th percentile per-packet one-way delay: 87.087 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 673.81 Mbit/s
95th percentile per-packet one-way delay: 87.087 ms
Loss rate: 0.10%
```
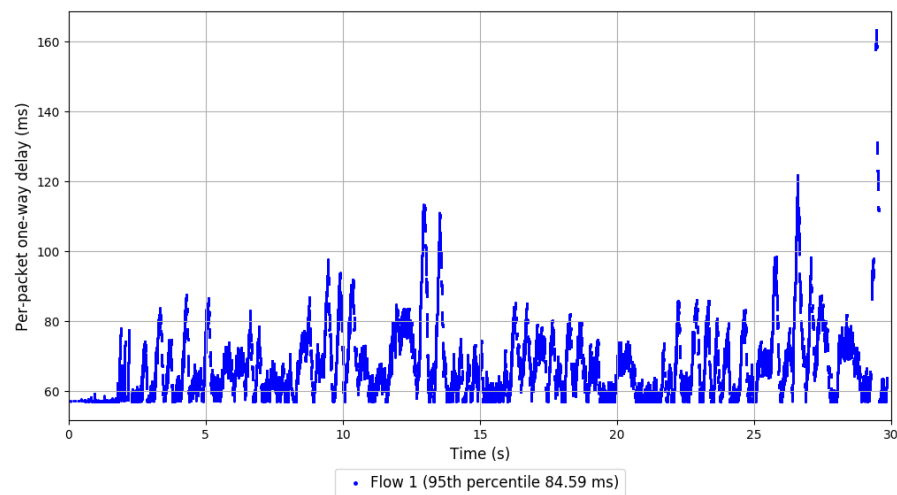
Run 2: Report of Indigo-MusesD — Data Link

```
Run 3: Statistics of Indigo-MusesD

Start at: 2019-01-03 16:45:47
End at: 2019-01-03 16:46:17
Local clock offset: -0.149 ms
Remote clock offset: -0.046 ms


# Below is generated by plot.py at 2019-01-03 19:31:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 693.94 Mbit/s
95th percentile per-packet one-way delay: 83.164 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 693.94 Mbit/s
95th percentile per-packet one-way delay: 83.164 ms
Loss rate: 0.00%
```

Run 3: Report of Indigo-MusesD — Data Link

```
Run 4: Statistics of Indigo-MusesD

Start at: 2019-01-03 17:14:07
End at: 2019-01-03 17:14:37
Local clock offset: 0.172 ms
Remote clock offset: -0.029 ms


# Below is generated by plot.py at 2019-01-03 19:31:43
# Datalink statistics
-- Total of 1 flow:
Average throughput: 673.31 Mbit/s
95th percentile per-packet one-way delay: 84.593 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 673.31 Mbit/s
95th percentile per-packet one-way delay: 84.593 ms
Loss rate: 0.00%
```
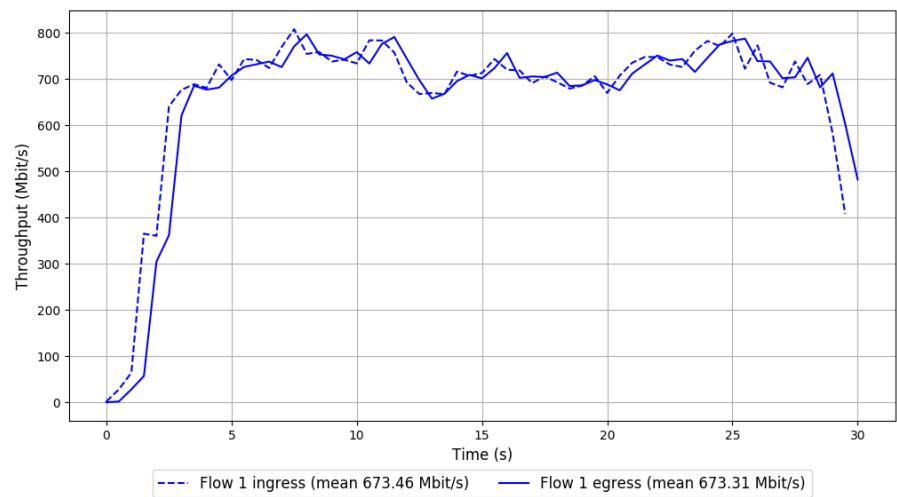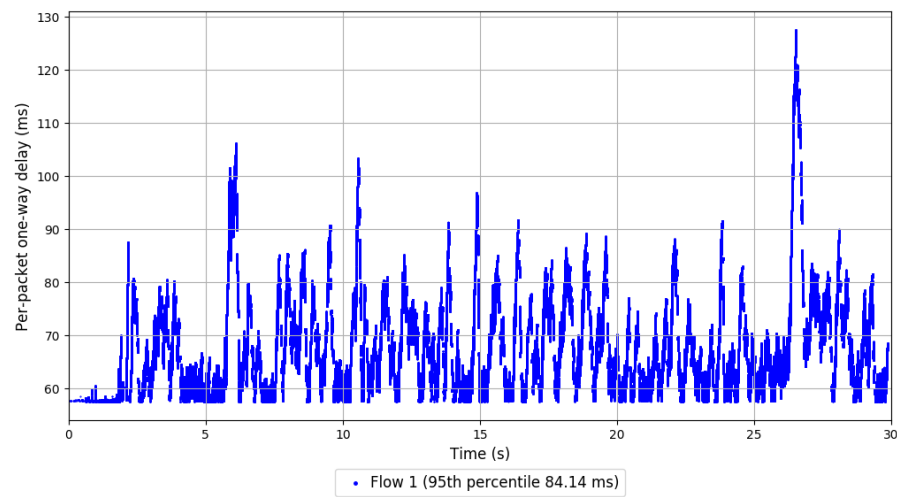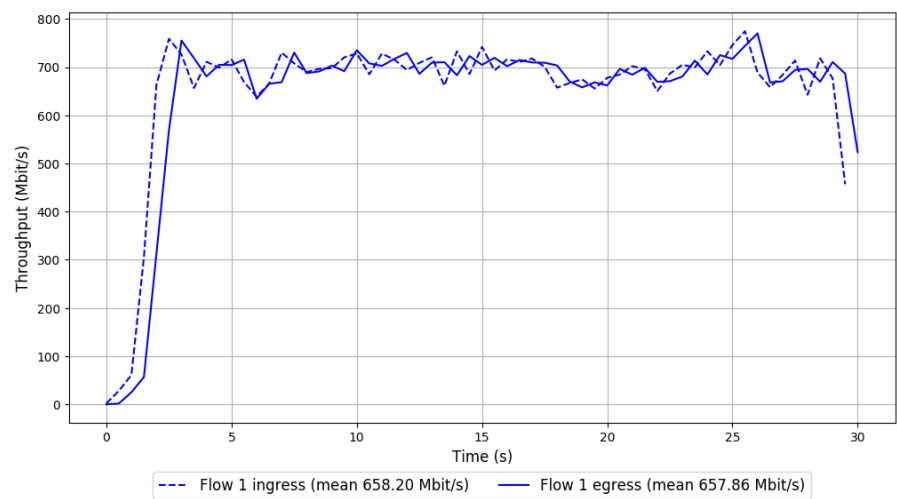
Run 4: Report of Indigo-MusesD — Data Link

Flow 1 ingress (mean 673.46 Mbit/s)   Flow 1 egress (mean 673.31 Mbit/s)

Flow 1 (95th percentile 84.59 ms)

```
Run 5: Statistics of Indigo-MusesD

Start at: 2019-01-03 17:42:08
End at: 2019-01-03 17:42:38
Local clock offset: -0.359 ms
Remote clock offset: -0.049 ms


# Below is generated by plot.py at 2019-01-03 19:31:52
# Datalink statistics
-- Total of 1 flow:
Average throughput: 657.86 Mbit/s
95th percentile per-packet one-way delay: 84.140 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 657.86 Mbit/s
95th percentile per-packet one-way delay: 84.140 ms
Loss rate: 0.05%
```

Run 5: Report of Indigo-MusesD — Data Link

```
Run 1: Statistics of Indigo-MusesT

Start at: 2019-01-03 15:57:47
End at: 2019-01-03 15:58:17
Local clock offset: -0.087 ms
Remote clock offset: 1.21 ms


# Below is generated by plot.py at 2019-01-03 19:32:34
# Datalink statistics
-- Total of 1 flow:
Average throughput: 700.56 Mbit/s
95th percentile per-packet one-way delay: 132.384 ms
Loss rate: 0.12%
-- Flow 1:
Average throughput: 700.56 Mbit/s
95th percentile per-packet one-way delay: 132.384 ms
Loss rate: 0.12%
```
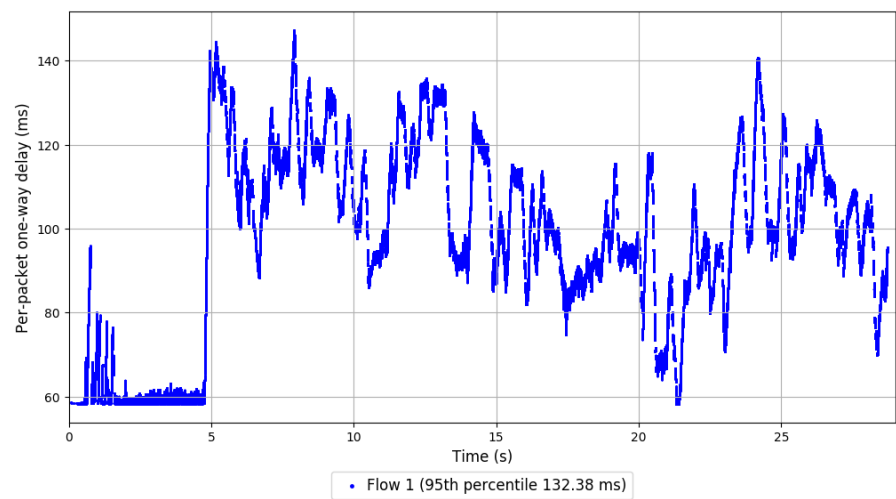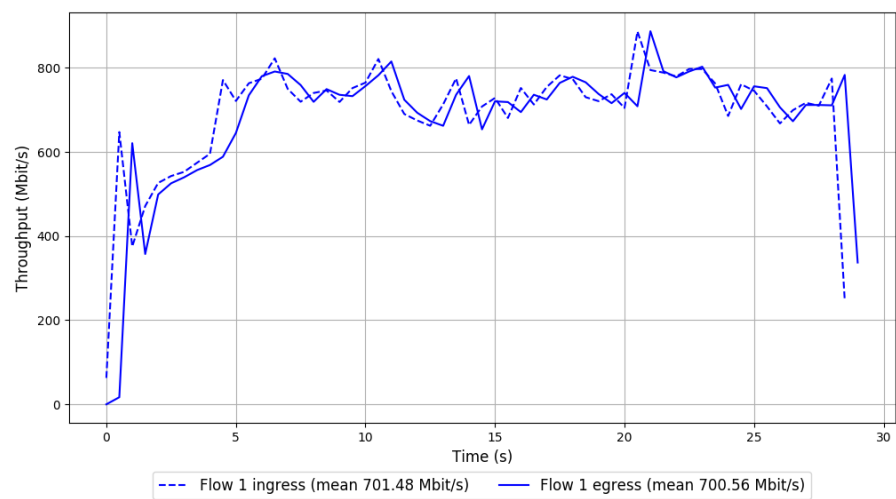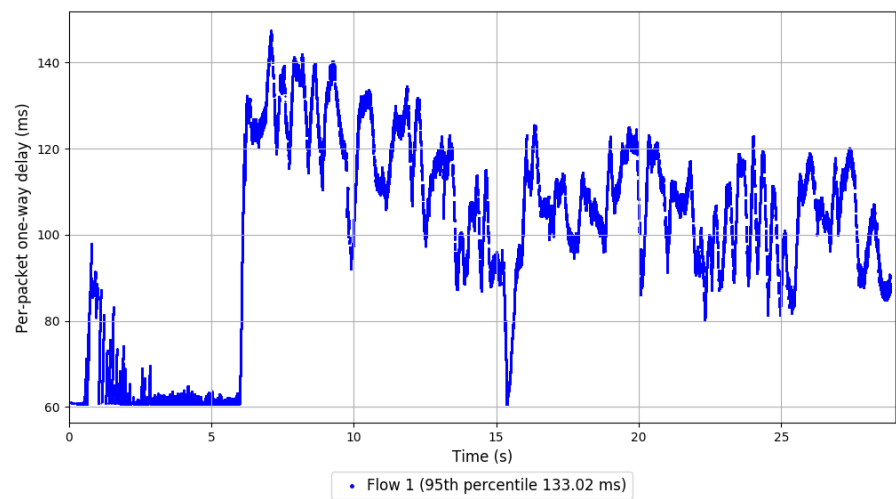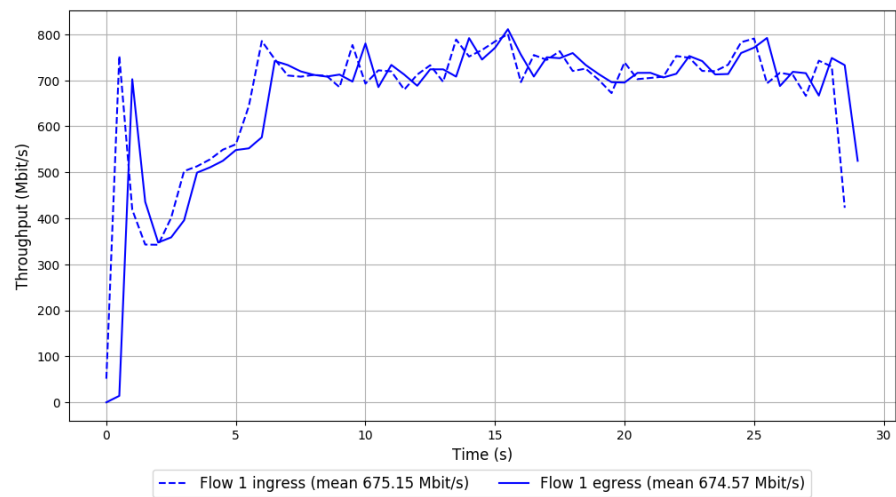
Run 1: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 701.48 Mbit/s)   Flow 1 egress (mean 700.56 Mbit/s)
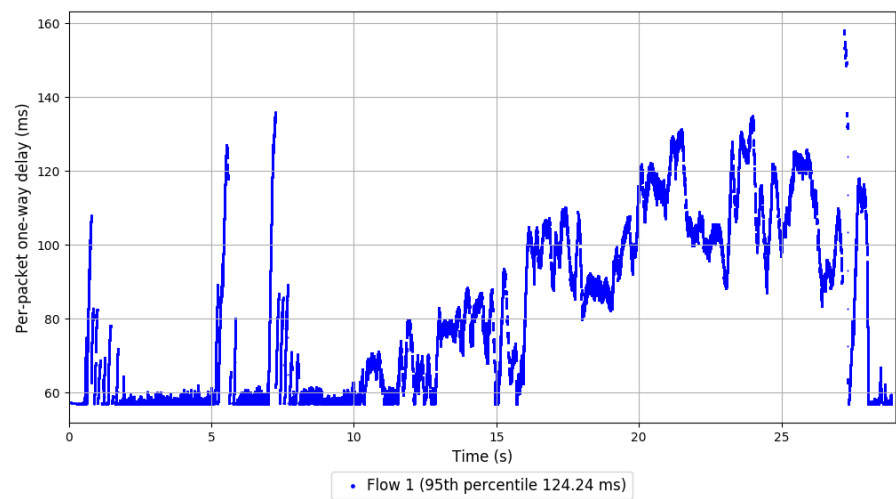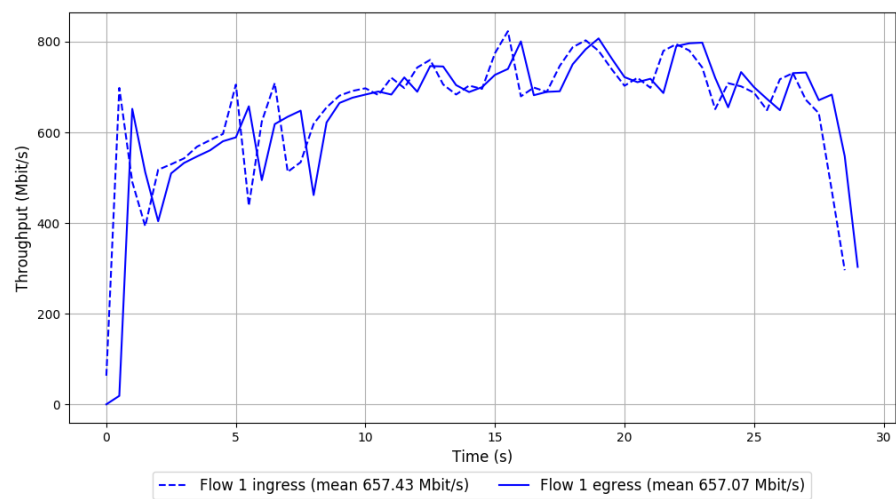

Flow 1 (95th percentile 132.38 ms)

```
Run 2: Statistics of Indigo-MusesT

Start at: 2019-01-03 16:26:12
End at: 2019-01-03 16:26:42
Local clock offset: -0.35 ms
Remote clock offset: 0.121 ms


# Below is generated by plot.py at 2019-01-03 19:32:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 674.57 Mbit/s
95th percentile per-packet one-way delay: 133.022 ms
Loss rate: 0.10%
-- Flow 1:
Average throughput: 674.57 Mbit/s
95th percentile per-packet one-way delay: 133.022 ms
Loss rate: 0.10%
```

Run 2: Report of Indigo-MusesT — Data Link

```
Run 3: Statistics of Indigo-MusesT

Start at: 2019-01-03 16:54:39
End at: 2019-01-03 16:55:09
Local clock offset: -0.258 ms
Remote clock offset: -0.118 ms


# Below is generated by plot.py at 2019-01-03 19:37:07
# Datalink statistics
-- Total of 1 flow:
Average throughput: 657.07 Mbit/s
95th percentile per-packet one-way delay: 124.236 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 657.07 Mbit/s
95th percentile per-packet one-way delay: 124.236 ms
Loss rate: 0.06%
```

Run 3: Report of Indigo-MusesT — Data Link

```
Run 4: Statistics of Indigo-MusesT

Start at: 2019-01-03 17:23:03
End at: 2019-01-03 17:23:33
Local clock offset: 0.083 ms
Remote clock offset: -0.074 ms


# Below is generated by plot.py at 2019-01-03 19:37:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 452.68 Mbit/s
95th percentile per-packet one-way delay: 137.779 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 452.68 Mbit/s
95th percentile per-packet one-way delay: 137.779 ms
Loss rate: 0.00%
```
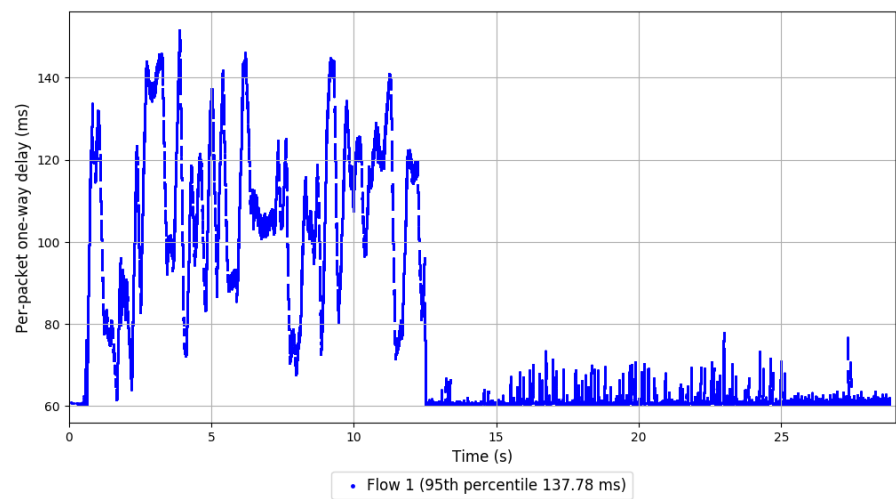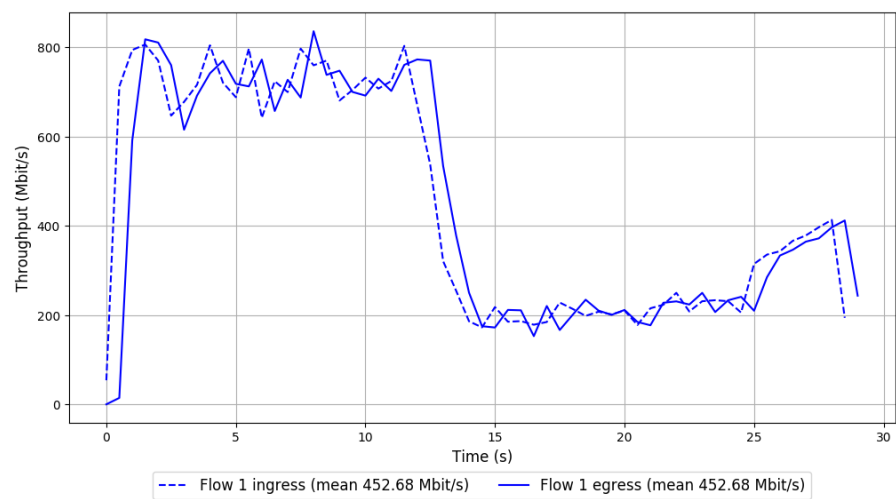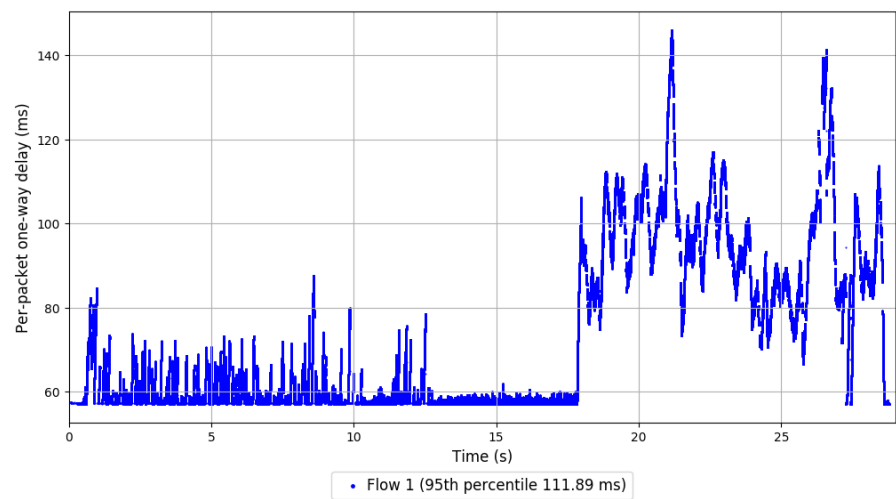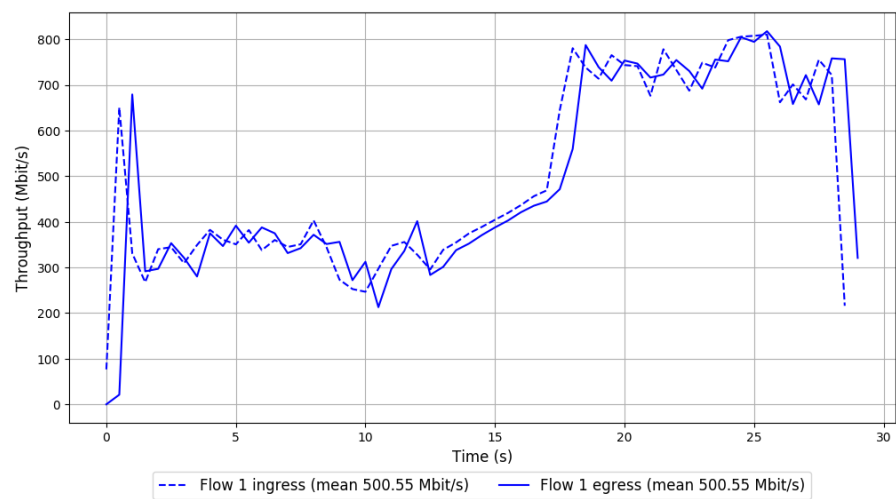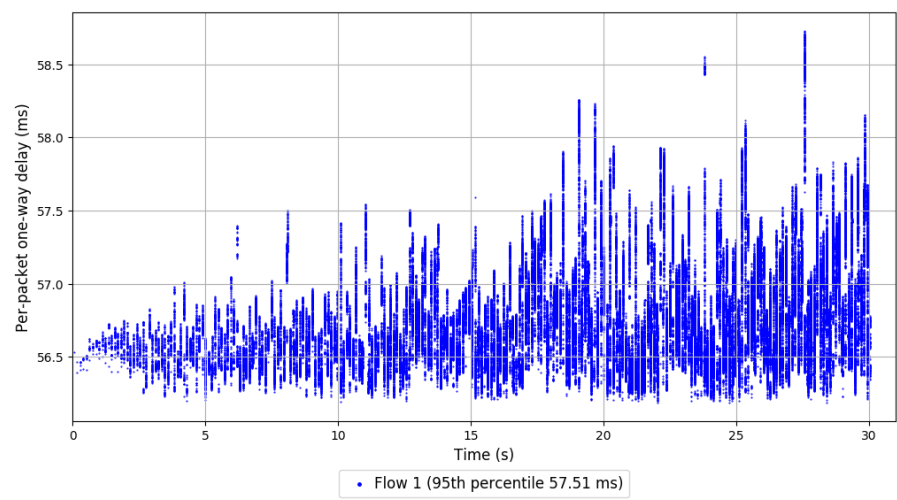
Run 4: Report of Indigo-MusesT — Data Link

Flow 1 ingress (mean 452.68 Mbit/s) --- Flow 1 egress (mean 452.68 Mbit/s)

• Flow 1 (95th percentile 137.78 ms)

```
Run 5: Statistics of Indigo-MusesT

Start at: 2019-01-03 17:51:01
End at: 2019-01-03 17:51:31
Local clock offset: -0.071 ms
Remote clock offset: 0.099 ms


# Below is generated by plot.py at 2019-01-03 19:41:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 500.55 Mbit/s
95th percentile per-packet one-way delay: 111.888 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 500.55 Mbit/s
95th percentile per-packet one-way delay: 111.888 ms
Loss rate: 0.00%
```
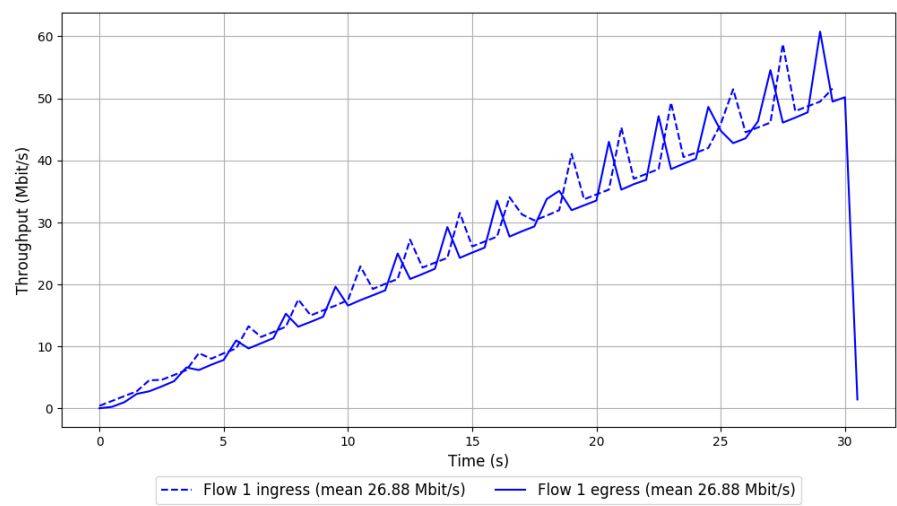
Run 5: Report of Indigo-MusesT — Data Link

```
Run 1: Statistics of LEDBAT

Start at: 2019-01-03 15:56:36
End at: 2019-01-03 15:57:06
Local clock offset: 0.035 ms
Remote clock offset: -0.894 ms


# Below is generated by plot.py at 2019-01-03 19:41:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.88 Mbit/s
95th percentile per-packet one-way delay: 57.512 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 26.88 Mbit/s
95th percentile per-packet one-way delay: 57.512 ms
Loss rate: 0.00%
```
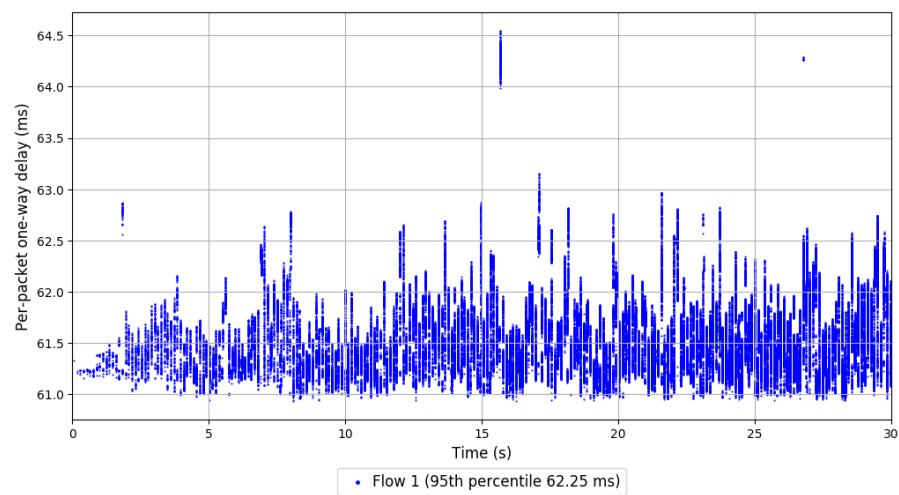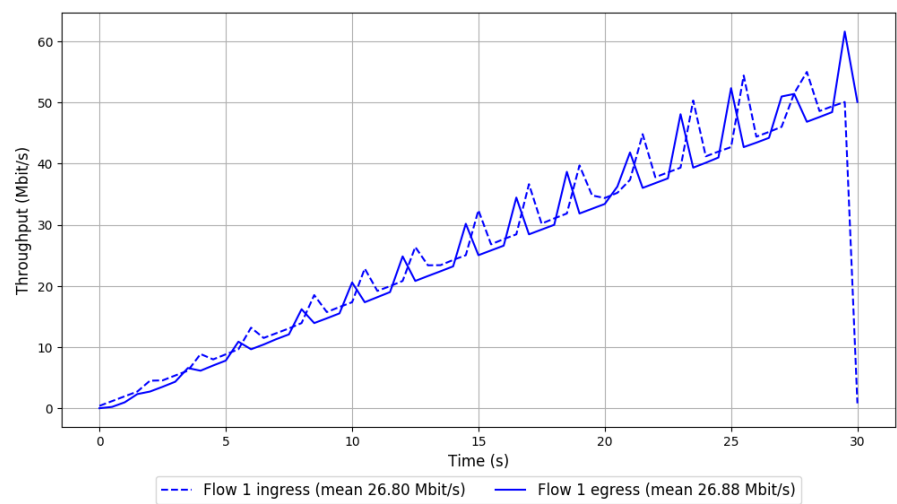
Run 1: Report of LEDBAT — Data Link

```
Run 2: Statistics of LEDBAT

Start at: 2019-01-03 16:25:02
End at: 2019-01-03 16:25:32
Local clock offset: -0.562 ms
Remote clock offset: 0.028 ms


# Below is generated by plot.py at 2019-01-03 19:41:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.88 Mbit/s
95th percentile per-packet one-way delay: 62.250 ms
Loss rate: 0.05%
-- Flow 1:
Average throughput: 26.88 Mbit/s
95th percentile per-packet one-way delay: 62.250 ms
Loss rate: 0.05%
```

Run 2: Report of LEDBAT — Data Link

Flow 1 ingress (mean 26.80 Mbit/s)   Flow 1 egress (mean 26.88 Mbit/s)

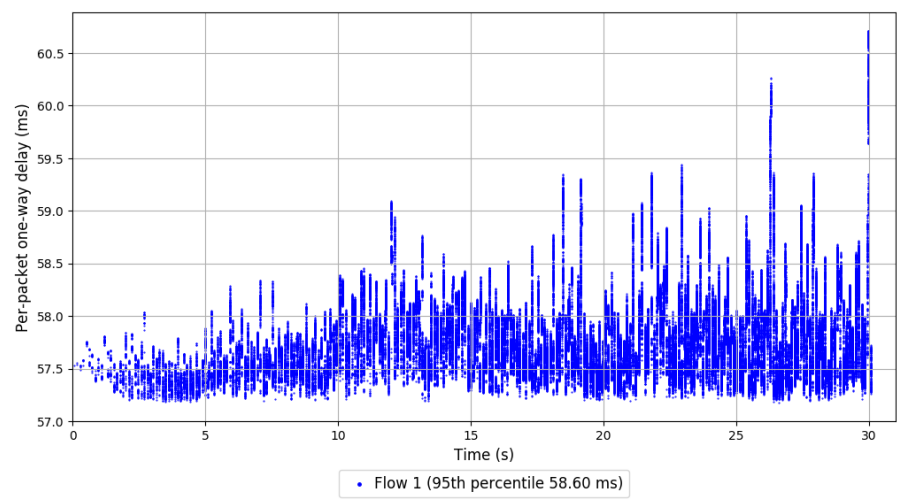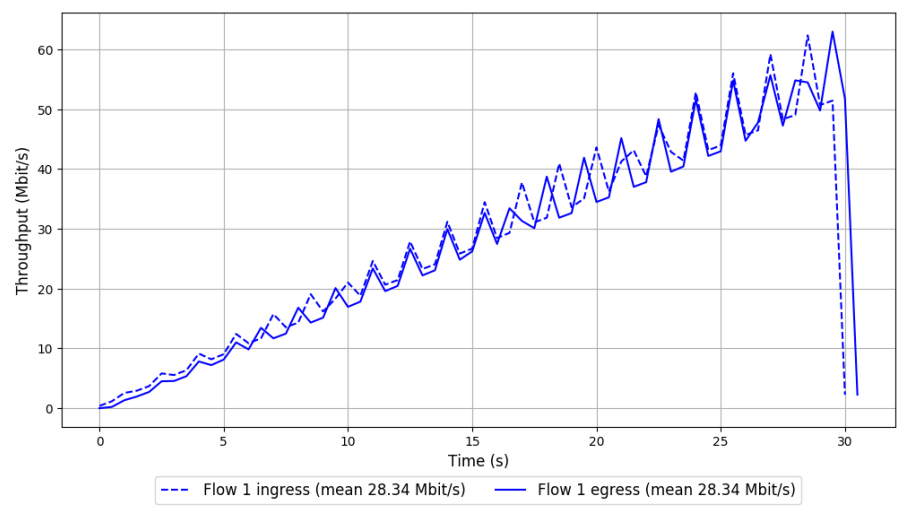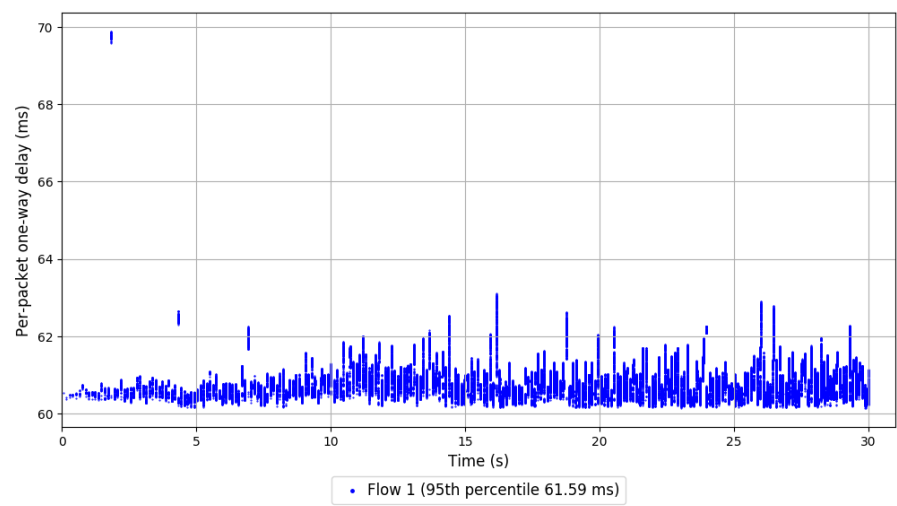• Flow 1 (95th percentile 62.25 ms)

```
Run 3: Statistics of LEDBAT

Start at: 2019-01-03 16:53:28
End at: 2019-01-03 16:53:59
Local clock offset: 0.056 ms
Remote clock offset: -0.069 ms


# Below is generated by plot.py at 2019-01-03 19:41:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.34 Mbit/s
95th percentile per-packet one-way delay: 58.602 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 28.34 Mbit/s
95th percentile per-packet one-way delay: 58.602 ms
Loss rate: 0.00%
```

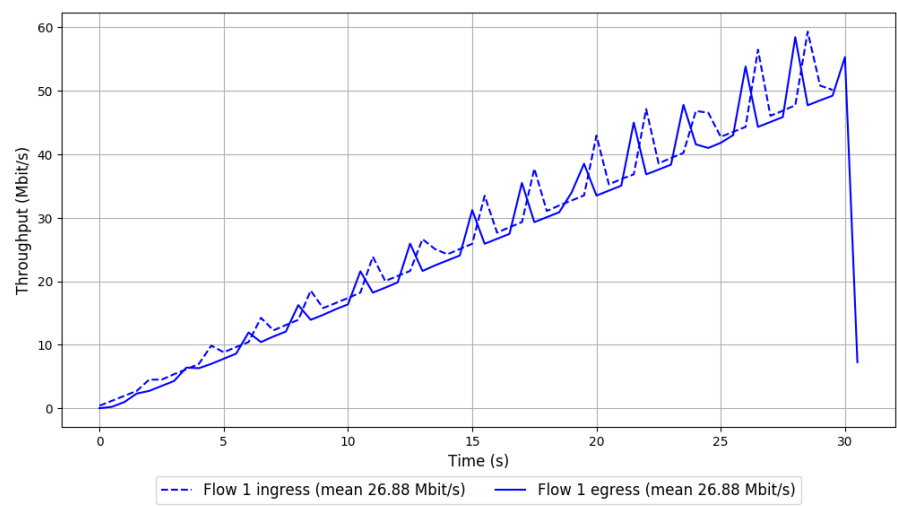Run 3: Report of LEDBAT — Data Link

```
Run 4: Statistics of LEDBAT

Start at: 2019-01-03 17:21:52
End at: 2019-01-03 17:22:22
Local clock offset: -0.094 ms
Remote clock offset: -0.198 ms


# Below is generated by plot.py at 2019-01-03 19:41:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 26.88 Mbit/s
95th percentile per-packet one-way delay: 61.594 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 26.88 Mbit/s
95th percentile per-packet one-way delay: 61.594 ms
Loss rate: 0.00%
```

Run 4: Report of LEDBAT — Data Link

```
Run 5: Statistics of LEDBAT

Start at: 2019-01-03 17:49:50
End at: 2019-01-03 17:50:20
Local clock offset: 0.267 ms
Remote clock offset: 0.01 ms


# Below is generated by plot.py at 2019-01-03 19:41:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 28.58 Mbit/s
95th percentile per-packet one-way delay: 58.073 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 28.58 Mbit/s
95th percentile per-packet one-way delay: 58.073 ms
Loss rate: 0.00%
```
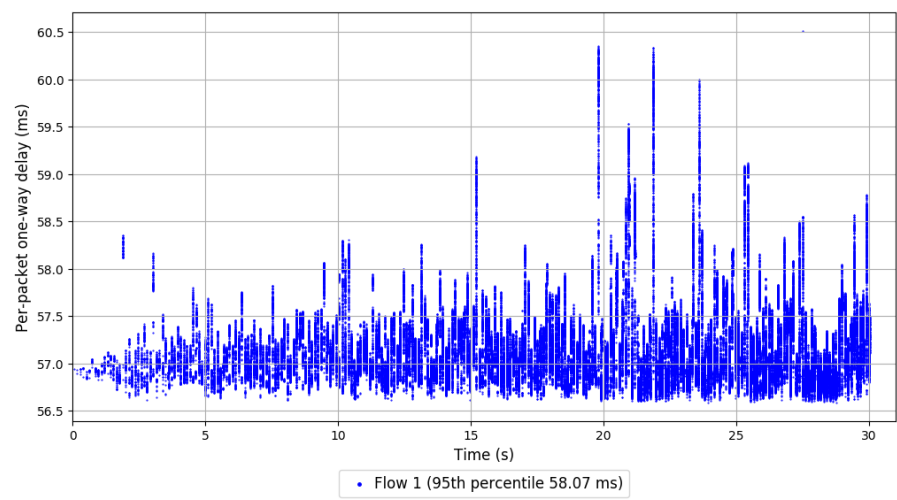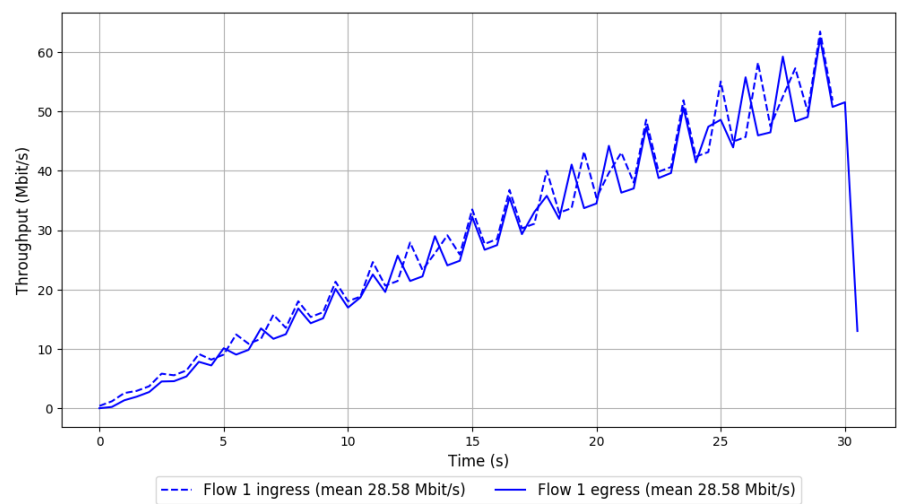
Run 5: Report of LEDBAT — Data Link

```
Run 1: Statistics of PCC-Allegro

Start at: 2019-01-03 16:04:30
End at: 2019-01-03 16:05:00
Local clock offset: -0.45 ms
Remote clock offset: -0.677 ms


# Below is generated by plot.py at 2019-01-03 19:54:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 489.05 Mbit/s
95th percentile per-packet one-way delay: 165.776 ms
Loss rate: 1.98%
-- Flow 1:
Average throughput: 489.05 Mbit/s
95th percentile per-packet one-way delay: 165.776 ms
Loss rate: 1.98%
```
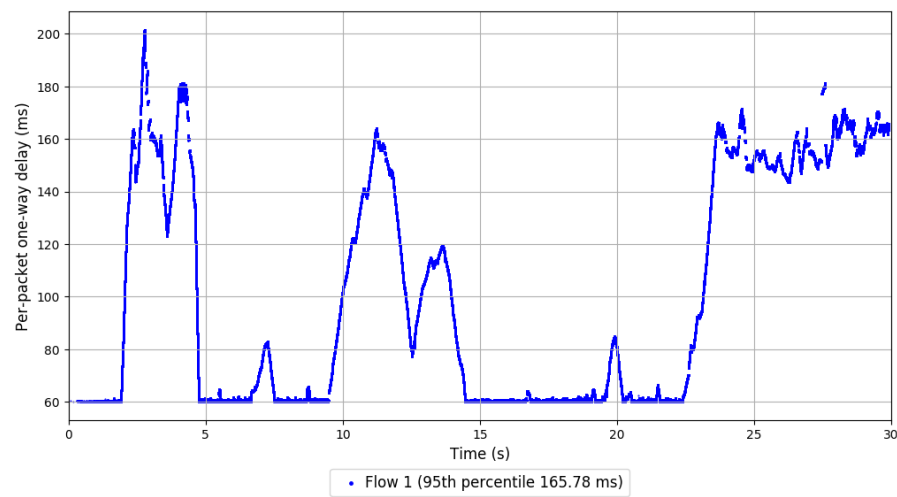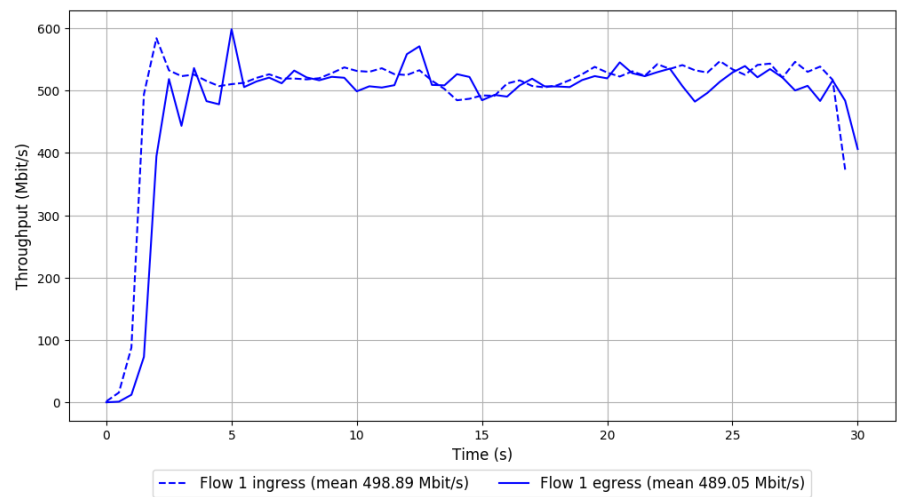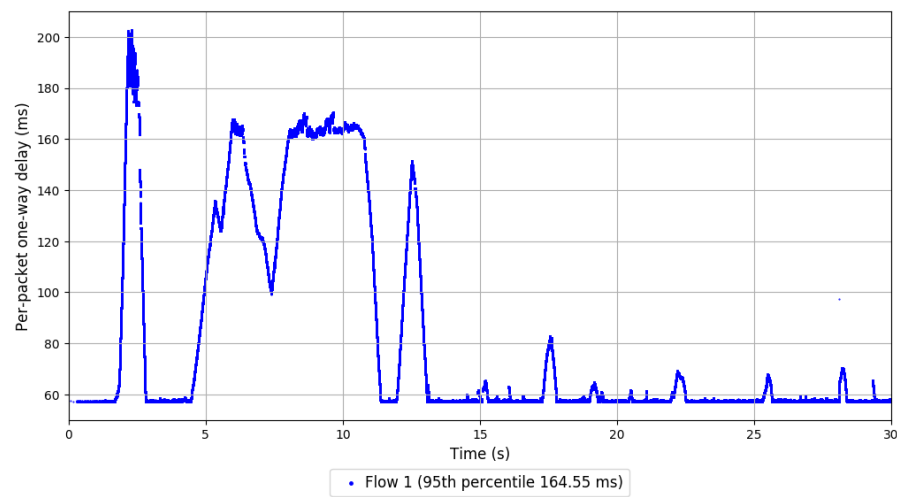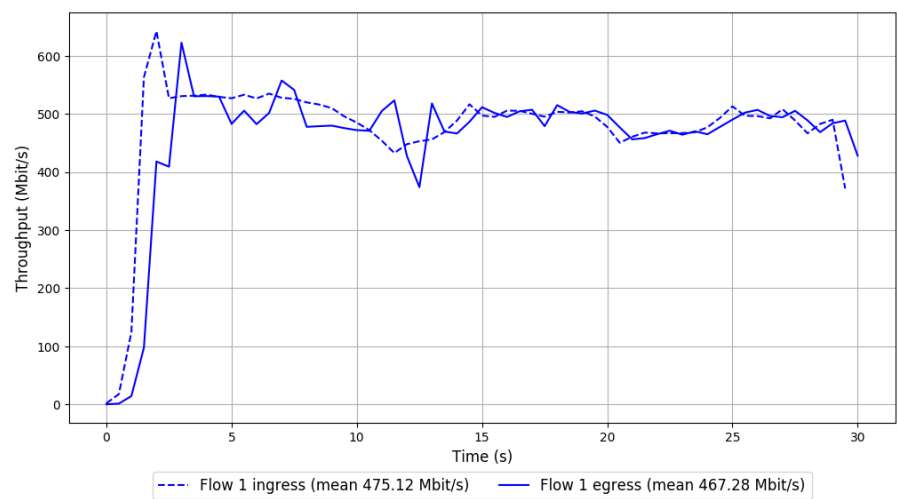
Run 1: Report of PCC-Allegro — Data Link

```
Run 2: Statistics of PCC-Allegro

Start at: 2019-01-03 16:32:57
End at: 2019-01-03 16:33:27
Local clock offset: -0.167 ms
Remote clock offset: -0.133 ms


# Below is generated by plot.py at 2019-01-03 19:54:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 467.28 Mbit/s
95th percentile per-packet one-way delay: 164.548 ms
Loss rate: 1.65%
-- Flow 1:
Average throughput: 467.28 Mbit/s
95th percentile per-packet one-way delay: 164.548 ms
Loss rate: 1.65%
```

Run 2: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 475.12 Mbit/s)   Flow 1 egress (mean 467.28 Mbit/s)
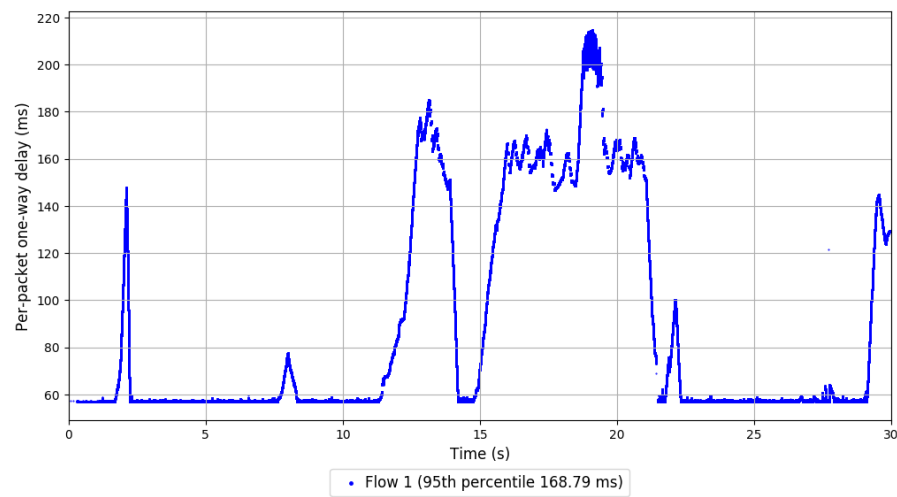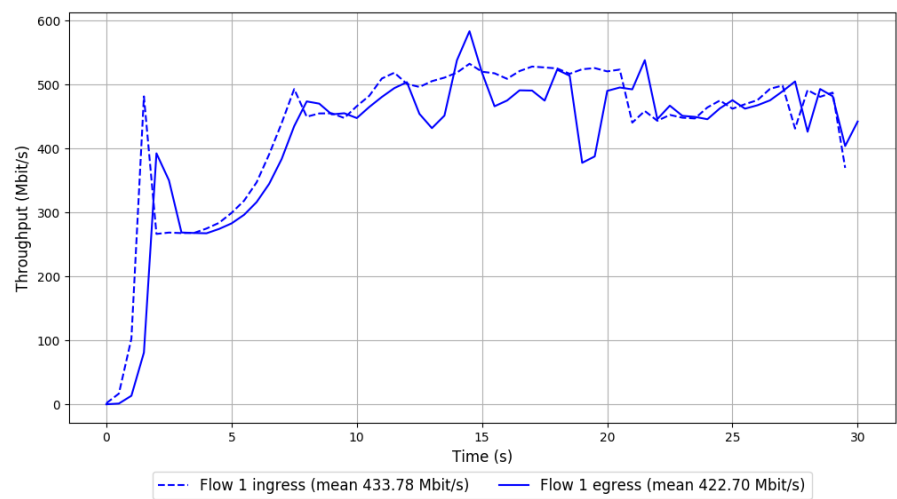

Flow 1 (95th percentile 164.55 ms)

```
Run 3: Statistics of PCC-Allegro

Start at: 2019-01-03 17:01:25
End at: 2019-01-03 17:01:55
Local clock offset: -0.084 ms
Remote clock offset: -0.164 ms


# Below is generated by plot.py at 2019-01-03 19:54:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 422.70 Mbit/s
95th percentile per-packet one-way delay: 168.787 ms
Loss rate: 2.54%
-- Flow 1:
Average throughput: 422.70 Mbit/s
95th percentile per-packet one-way delay: 168.787 ms
Loss rate: 2.54%
```
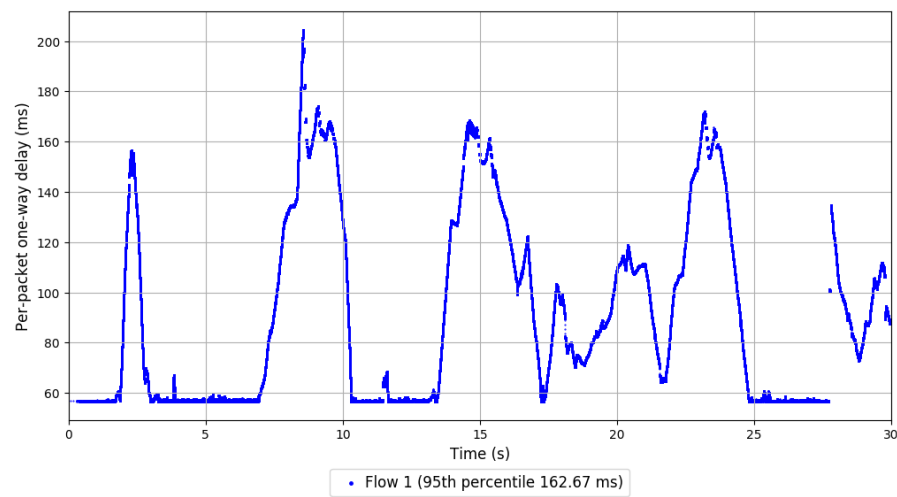
Run 3: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 433.78 Mbit/s) —— Flow 1 egress (mean 422.70 Mbit/s)

• Flow 1 (95th percentile 168.79 ms)

100

```
Run 4: Statistics of PCC-Allegro

Start at: 2019-01-03 17:29:36
End at: 2019-01-03 17:30:06
Local clock offset: 0.094 ms
Remote clock offset: -0.331 ms


# Below is generated by plot.py at 2019-01-03 19:55:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 476.51 Mbit/s
95th percentile per-packet one-way delay: 162.669 ms
Loss rate: 0.88%
-- Flow 1:
Average throughput: 476.51 Mbit/s
95th percentile per-packet one-way delay: 162.669 ms
Loss rate: 0.88%
```
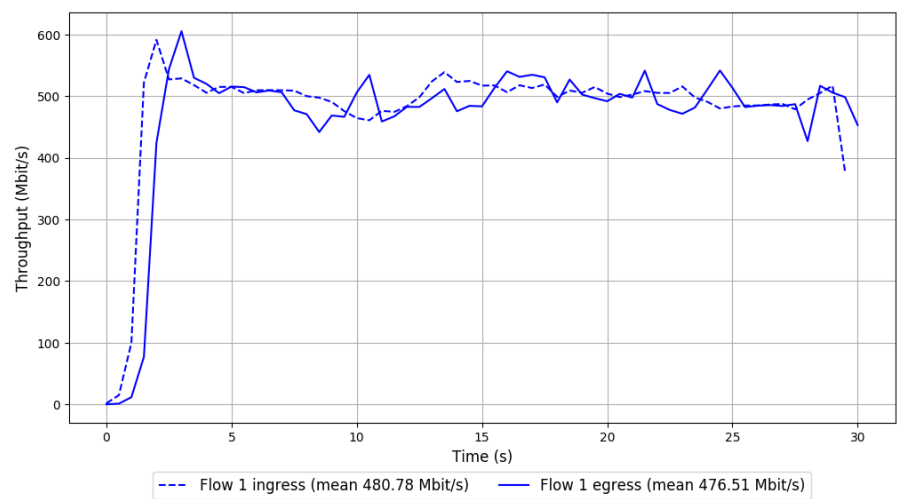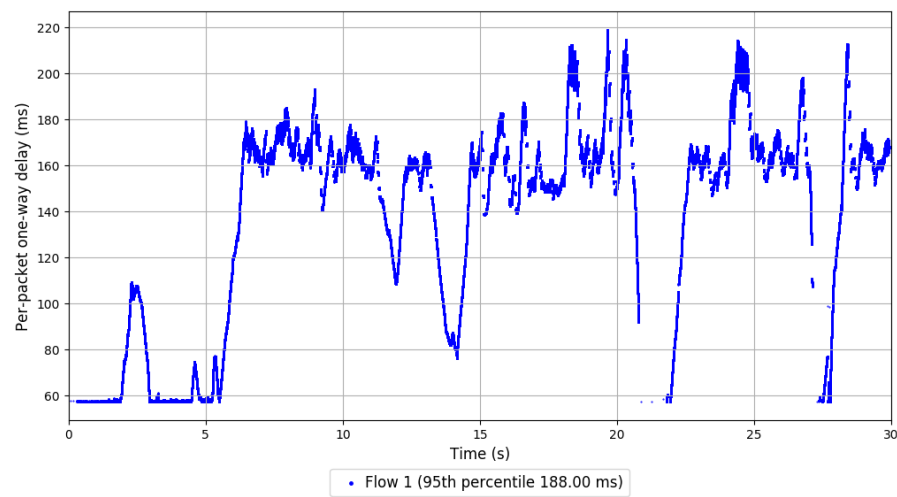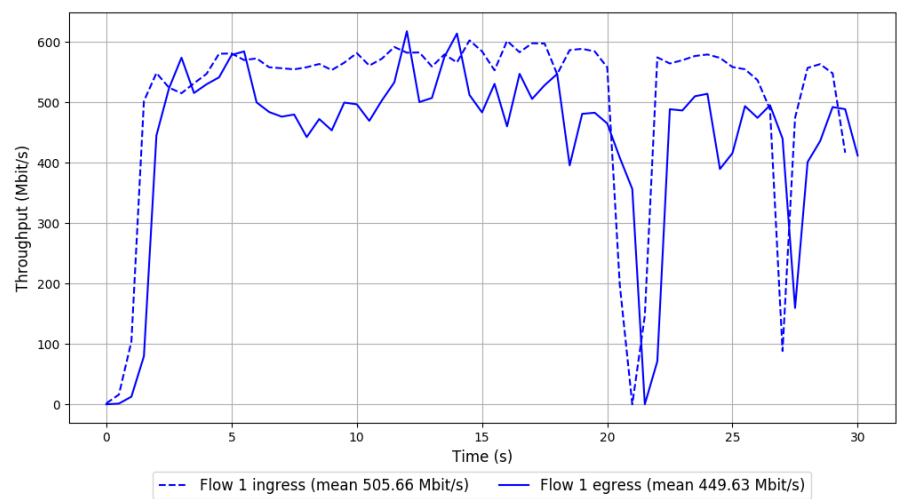
Run 4: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 480.78 Mbit/s)   Flow 1 egress (mean 476.51 Mbit/s)

Flow 1 (95th percentile 162.67 ms)

```
Run 5: Statistics of PCC-Allegro

Start at: 2019-01-03 17:57:36
End at: 2019-01-03 17:58:06
Local clock offset: -0.429 ms
Remote clock offset: 0.008 ms


# Below is generated by plot.py at 2019-01-03 19:55:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 449.63 Mbit/s
95th percentile per-packet one-way delay: 187.998 ms
Loss rate: 11.08%
-- Flow 1:
Average throughput: 449.63 Mbit/s
95th percentile per-packet one-way delay: 187.998 ms
Loss rate: 11.08%
```

Run 5: Report of PCC-Allegro — Data Link

Flow 1 ingress (mean 505.66 Mbit/s)   Flow 1 egress (mean 449.63 Mbit/s)
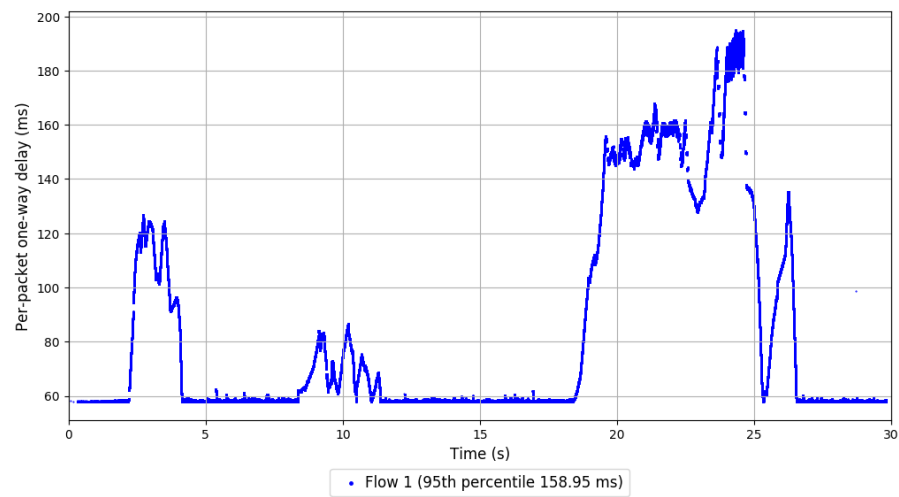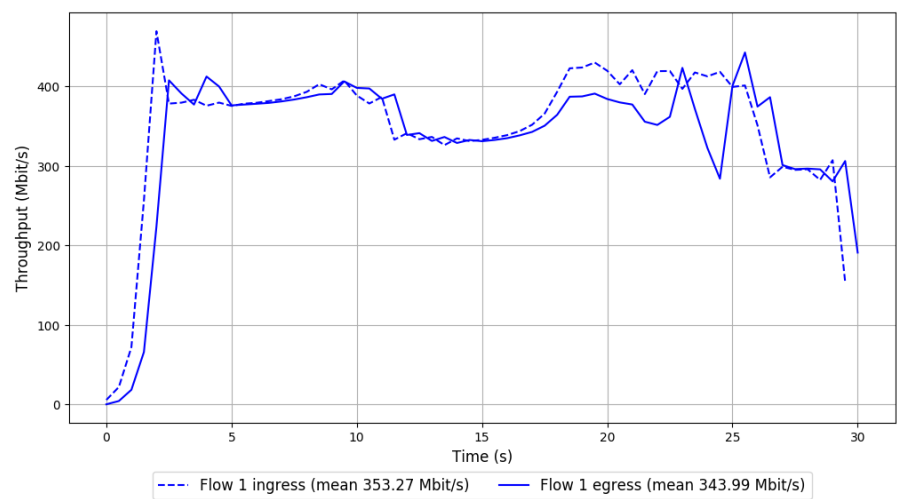

Flow 1 (95th percentile 188.00 ms)

```
Run 1: Statistics of PCC-Expr

Start at: 2019-01-03 15:54:58
End at: 2019-01-03 15:55:28
Local clock offset: 0.178 ms
Remote clock offset: 1.13 ms


# Below is generated by plot.py at 2019-01-03 19:55:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 343.99 Mbit/s
95th percentile per-packet one-way delay: 158.949 ms
Loss rate: 2.63%
-- Flow 1:
Average throughput: 343.99 Mbit/s
95th percentile per-packet one-way delay: 158.949 ms
Loss rate: 2.63%
```
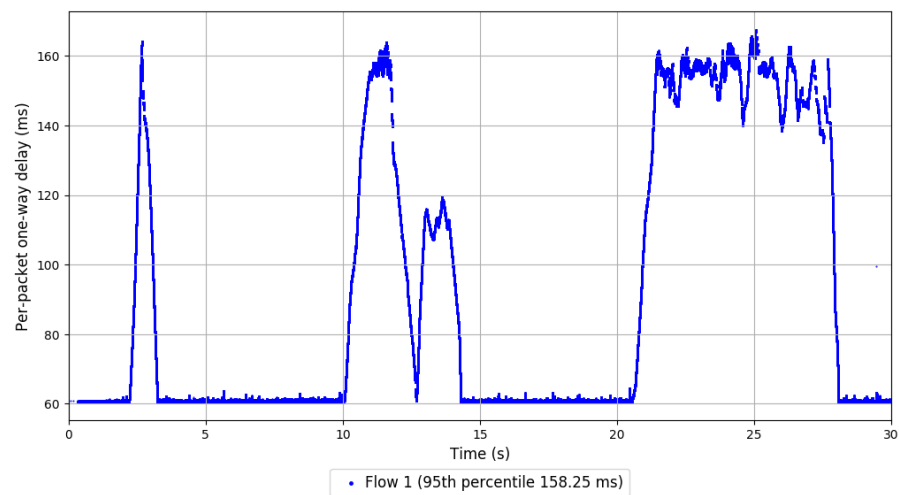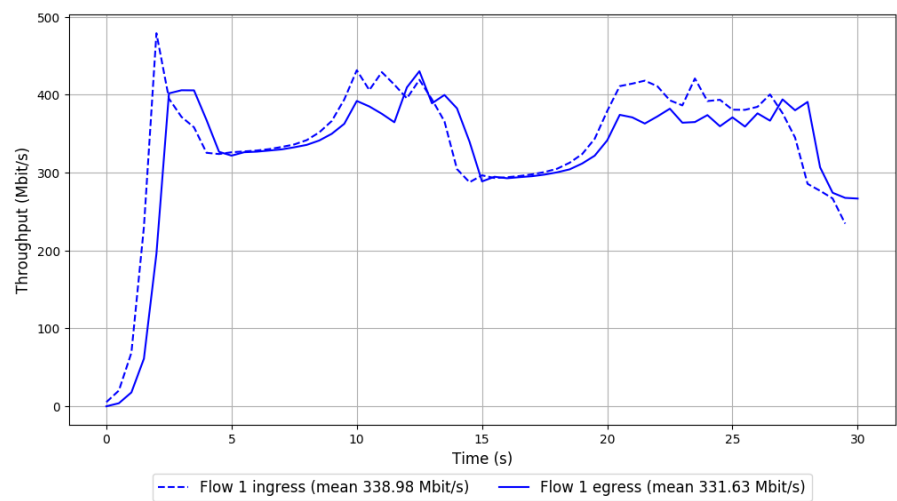
Run 1: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 353.27 Mbit/s)   Flow 1 egress (mean 343.99 Mbit/s)
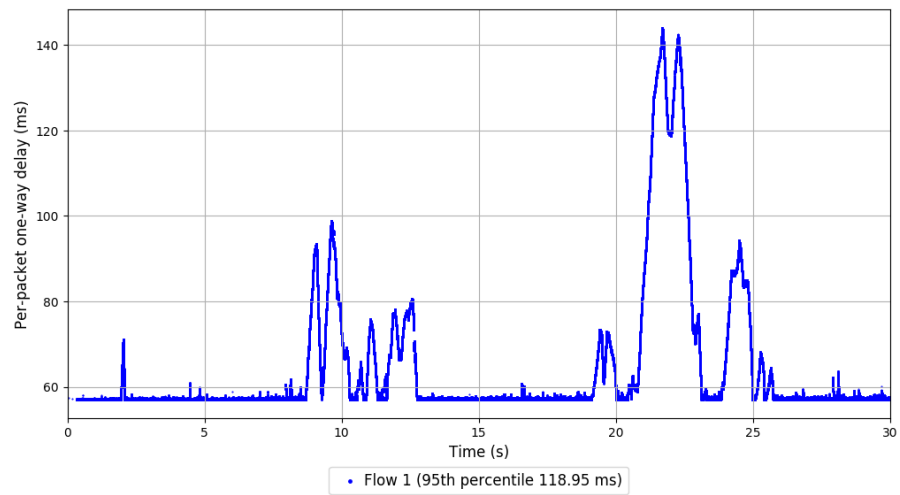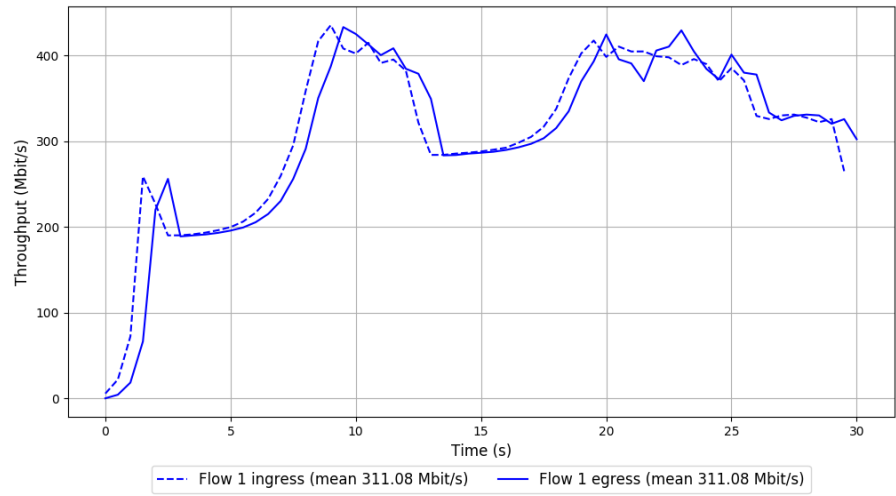

Flow 1 (95th percentile 158.95 ms)

```
Run 2: Statistics of PCC-Expr

Start at: 2019-01-03 16:23:24
End at: 2019-01-03 16:23:54
Local clock offset: -0.395 ms
Remote clock offset: 0.058 ms


# Below is generated by plot.py at 2019-01-03 19:55:28
# Datalink statistics
-- Total of 1 flow:
Average throughput: 331.63 Mbit/s
95th percentile per-packet one-way delay: 158.255 ms
Loss rate: 2.18%
-- Flow 1:
Average throughput: 331.63 Mbit/s
95th percentile per-packet one-way delay: 158.255 ms
Loss rate: 2.18%
```

Run 2: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 338.98 Mbit/s) ——— Flow 1 egress (mean 331.63 Mbit/s)

• Flow 1 (95th percentile 158.25 ms)

```
Run 3: Statistics of PCC-Expr

Start at: 2019-01-03 16:51:53
End at: 2019-01-03 16:52:23
Local clock offset: -0.544 ms
Remote clock offset: -0.225 ms


# Below is generated by plot.py at 2019-01-03 19:56:41
# Datalink statistics
-- Total of 1 flow:
Average throughput: 311.08 Mbit/s
95th percentile per-packet one-way delay: 118.947 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 311.08 Mbit/s
95th percentile per-packet one-way delay: 118.947 ms
Loss rate: 0.00%
```

Run 3: Report of PCC-Expr — Data Link

```
Run 4: Statistics of PCC-Expr

Start at: 2019-01-03 17:20:12
End at: 2019-01-03 17:20:42
Local clock offset: -0.299 ms
Remote clock offset: -0.15 ms

# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 359.16 Mbit/s
95th percentile per-packet one-way delay: 152.084 ms
Loss rate: 1.49%
-- Flow 1:
Average throughput: 359.16 Mbit/s
95th percentile per-packet one-way delay: 152.084 ms
Loss rate: 1.49%
```
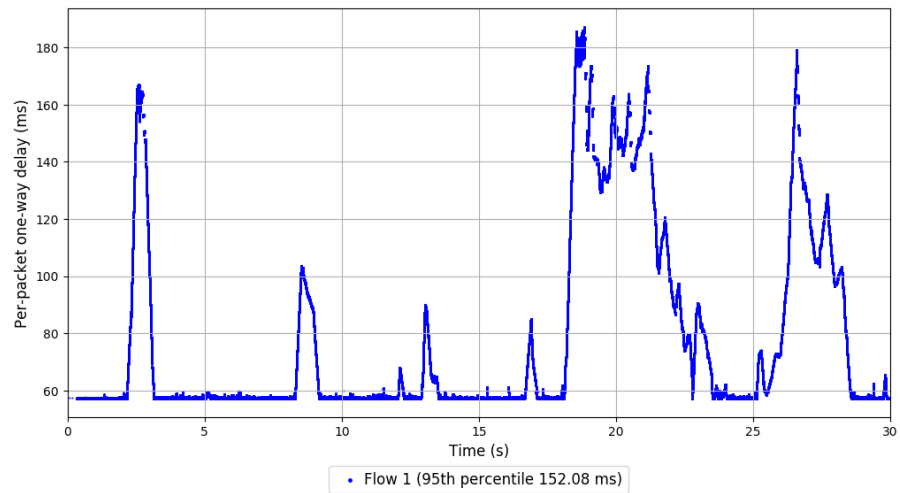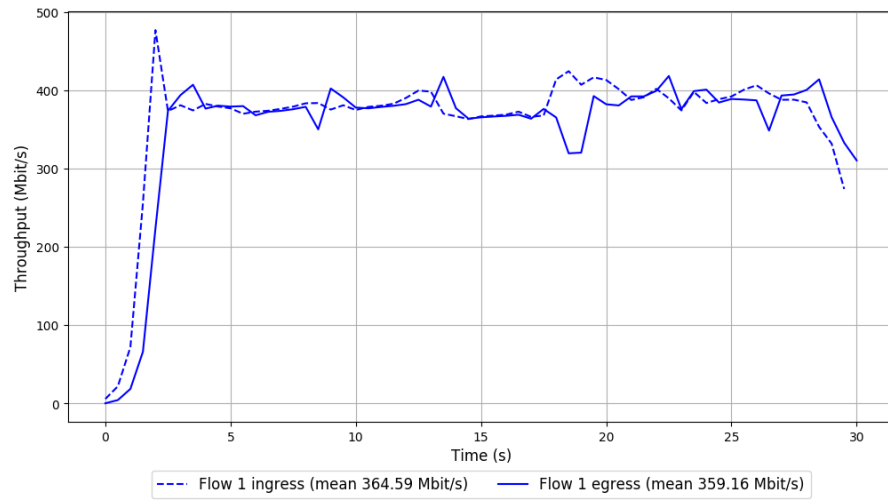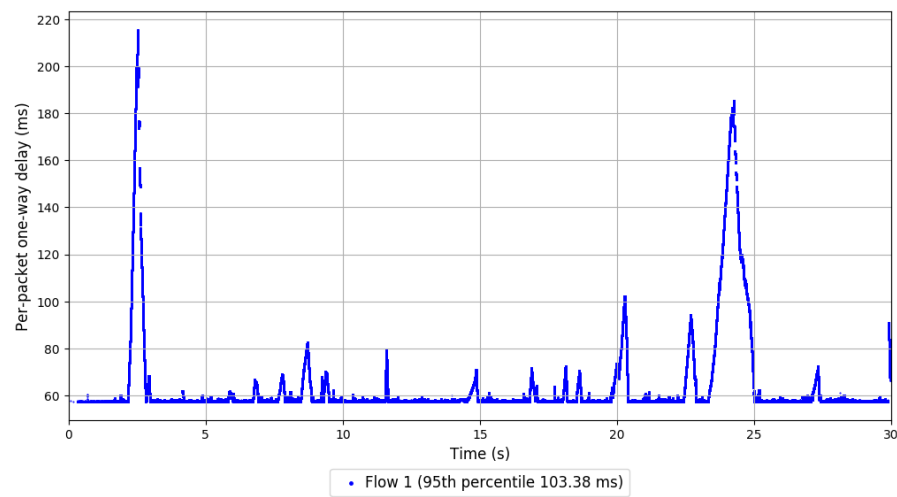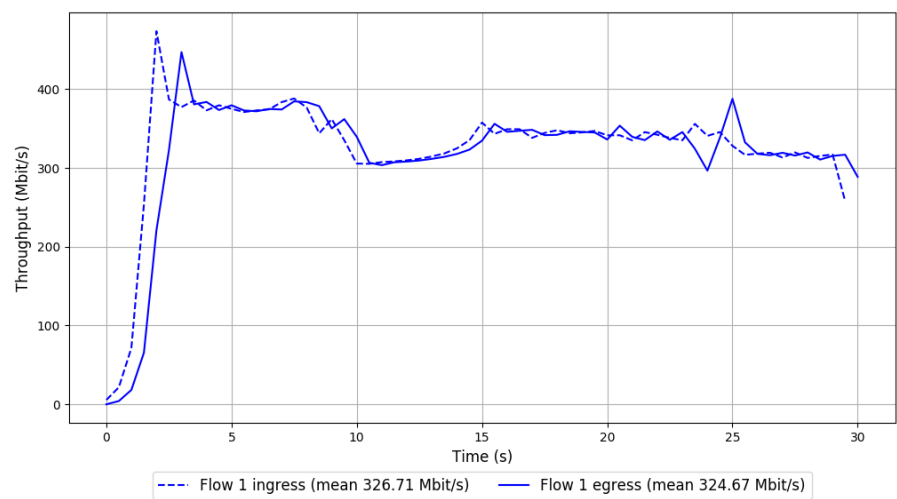
Run 4: Report of PCC-Expr — Data Link

Flow 1 ingress (mean 364.59 Mbit/s)   Flow 1 egress (mean 359.16 Mbit/s)

Flow 1 (95th percentile 152.08 ms)

```
Run 5: Statistics of PCC-Expr

Start at: 2019-01-03 17:48:13
End at: 2019-01-03 17:48:43
Local clock offset: -0.164 ms
Remote clock offset: -0.038 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 324.67 Mbit/s
95th percentile per-packet one-way delay: 103.379 ms
Loss rate: 0.63%
-- Flow 1:
Average throughput: 324.67 Mbit/s
95th percentile per-packet one-way delay: 103.379 ms
Loss rate: 0.63%
```

Run 5: Report of PCC-Expr — Data Link

```
Run 1: Statistics of QUIC Cubic

Start at: 2019-01-03 15:40:36
End at: 2019-01-03 15:41:06
Local clock offset: -0.179 ms
Remote clock offset: -0.136 ms
```

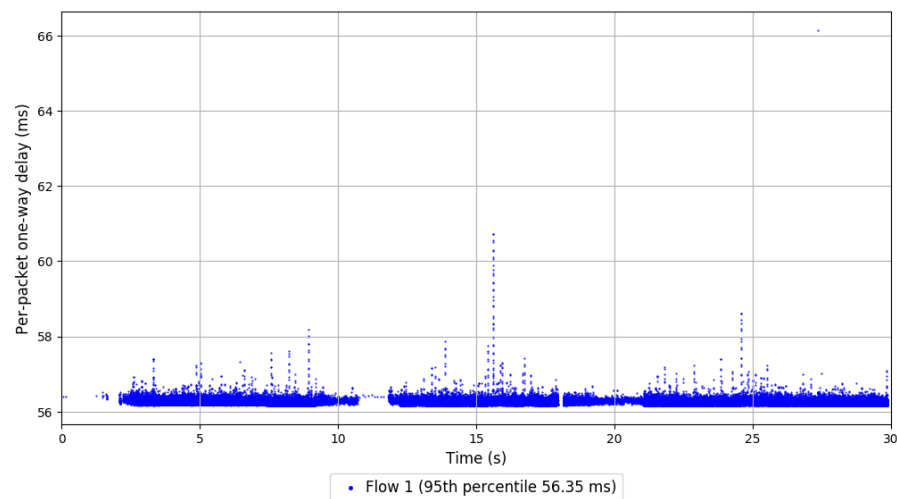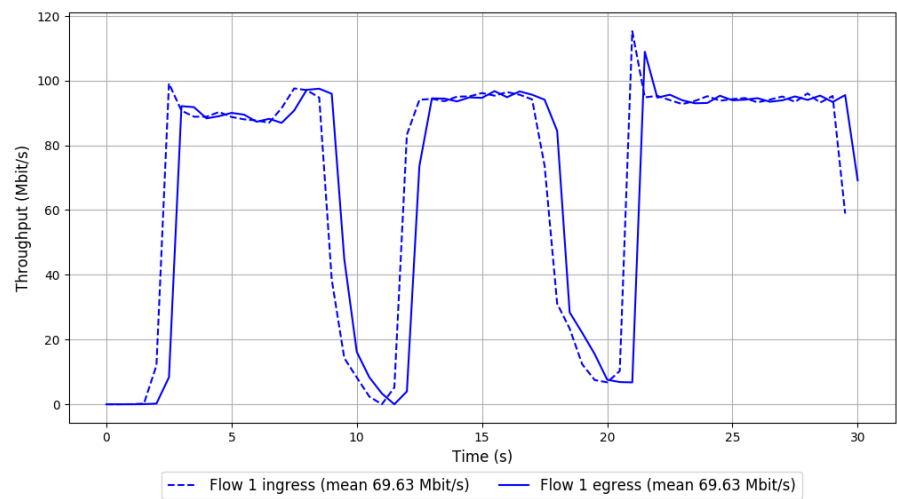## Run 1: Report of QUIC Cubic — Data Link

```
Run 2: Statistics of QUIC Cubic

Start at: 2019-01-03 16:08:50
End at: 2019-01-03 16:09:20
Local clock offset: -0.068 ms
Remote clock offset: -0.837 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 69.63 Mbit/s
95th percentile per-packet one-way delay: 56.347 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 69.63 Mbit/s
95th percentile per-packet one-way delay: 56.347 ms
Loss rate: 0.00%
```
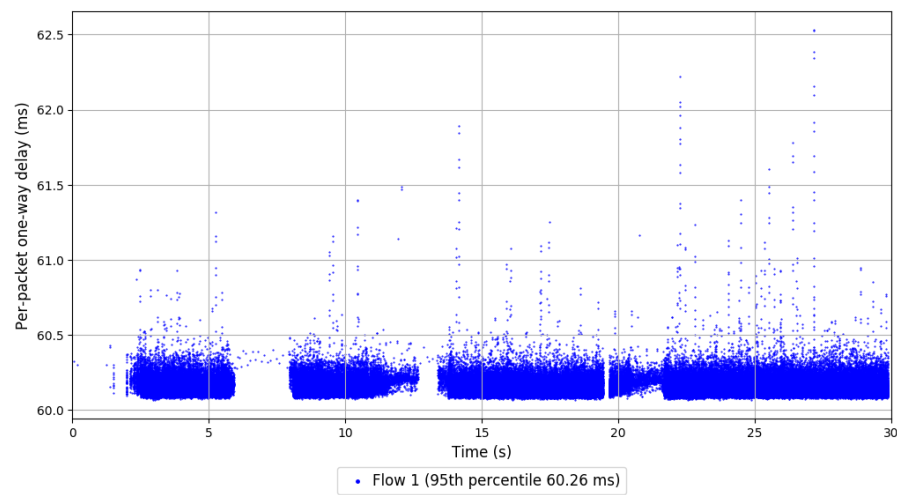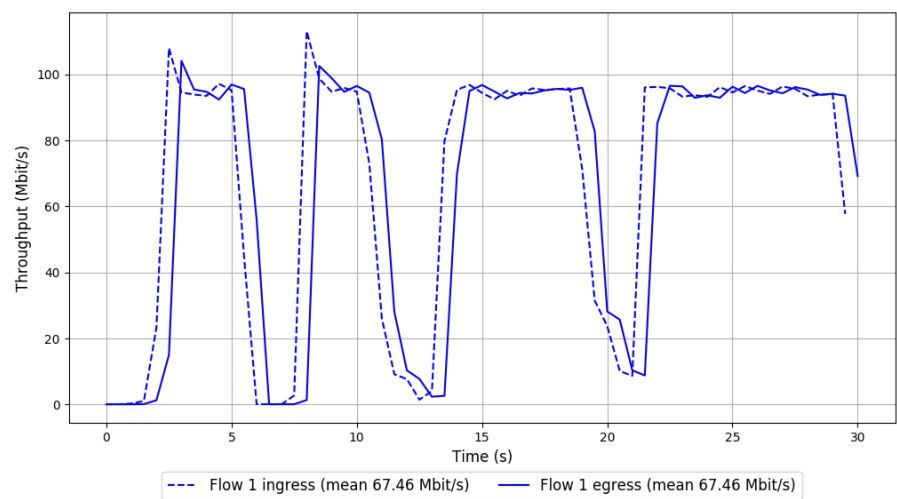
Run 2: Report of QUIC Cubic — Data Link

```
Run 3: Statistics of QUIC Cubic

Start at: 2019-01-03 16:37:10
End at: 2019-01-03 16:37:40
Local clock offset: -0.13 ms
Remote clock offset: 0.024 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 67.46 Mbit/s
95th percentile per-packet one-way delay: 60.259 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 67.46 Mbit/s
95th percentile per-packet one-way delay: 60.259 ms
Loss rate: 0.00%
```
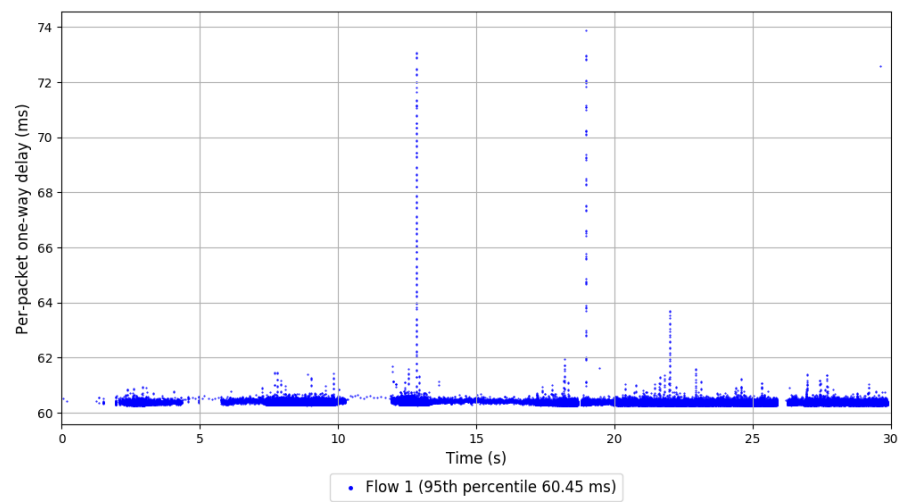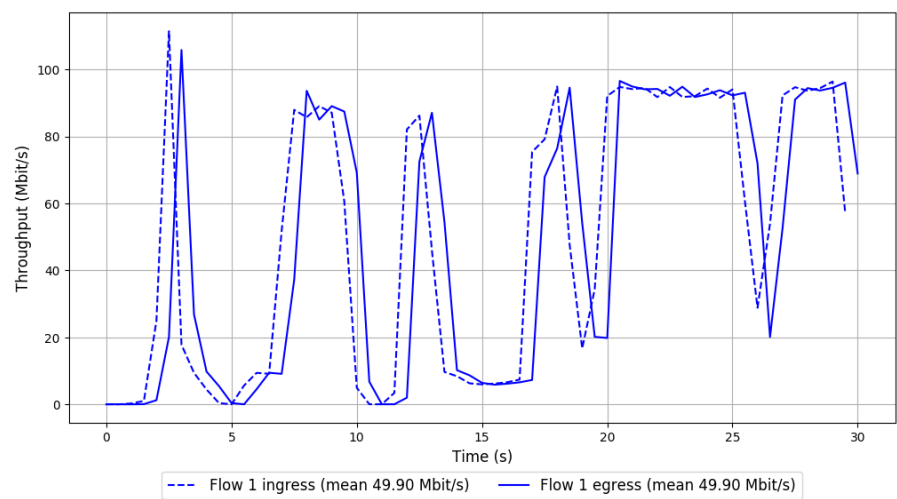
Run 3: Report of QUIC Cubic — Data Link

```
Run 4: Statistics of QUIC Cubic

Start at: 2019-01-03 17:05:41
End at: 2019-01-03 17:06:11
Local clock offset: -0.306 ms
Remote clock offset: -0.206 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 49.90 Mbit/s
95th percentile per-packet one-way delay: 60.451 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 49.90 Mbit/s
95th percentile per-packet one-way delay: 60.451 ms
Loss rate: 0.00%
```

Run 4: Report of QUIC Cubic — Data Link

```
Run 5: Statistics of QUIC Cubic

Start at: 2019-01-03 17:33:45
End at: 2019-01-03 17:34:15
Local clock offset: -0.321 ms
Remote clock offset: -0.015 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 72.03 Mbit/s
95th percentile per-packet one-way delay: 57.233 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 72.03 Mbit/s
95th percentile per-packet one-way delay: 57.233 ms
Loss rate: 0.00%
```
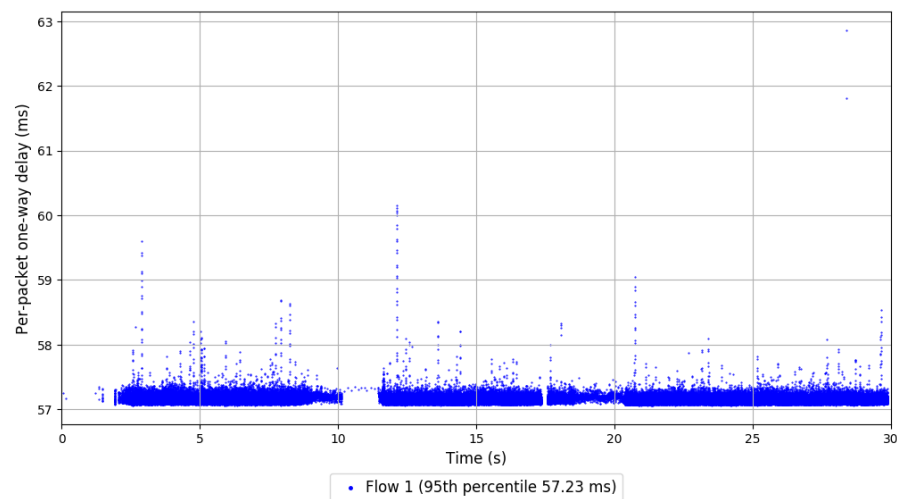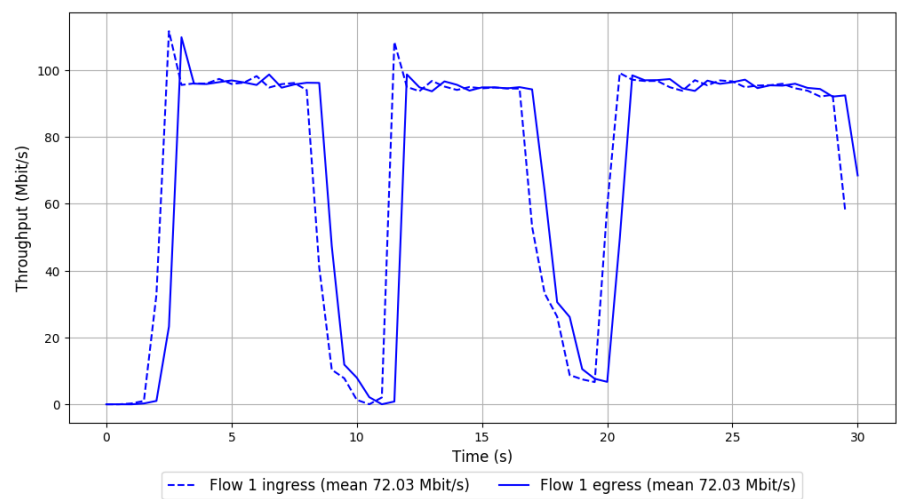
Run 5: Report of QUIC Cubic — Data Link

```
Run 1: Statistics of SCReAM

Start at: 2019-01-03 16:07:42
End at: 2019-01-03 16:08:12
Local clock offset: -0.085 ms
Remote clock offset: 0.039 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.516 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 57.516 ms
Loss rate: 0.00%
```
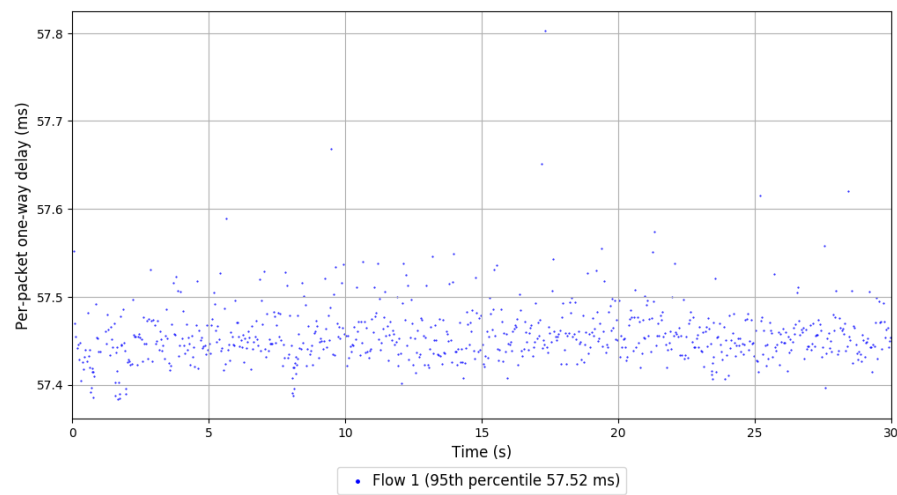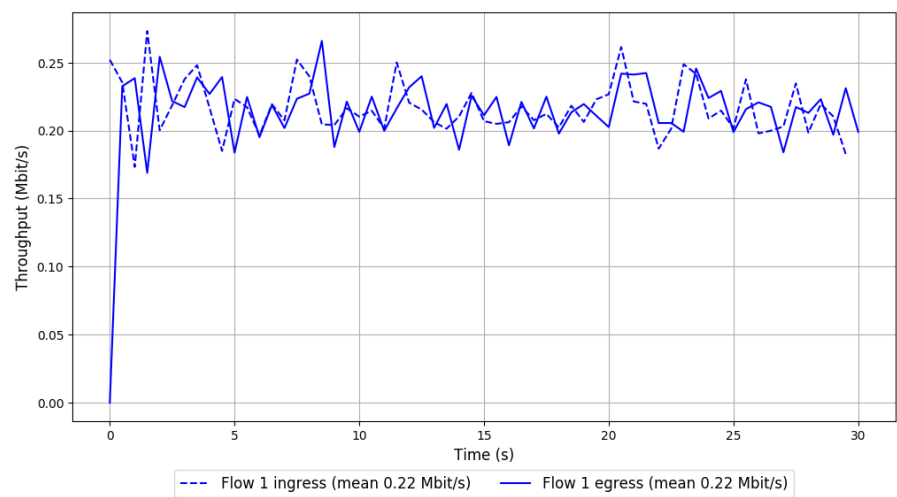
Run 1: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.22 Mbit/s) — — — Flow 1 egress (mean 0.22 Mbit/s)

Flow 1 (95th percentile 57.52 ms)

```
Run 2: Statistics of SCReAM

Start at: 2019-01-03 16:36:02
End at: 2019-01-03 16:36:32
Local clock offset: -0.398 ms
Remote clock offset: 0.081 ms

# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.215 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 61.215 ms
Loss rate: 0.00%
```
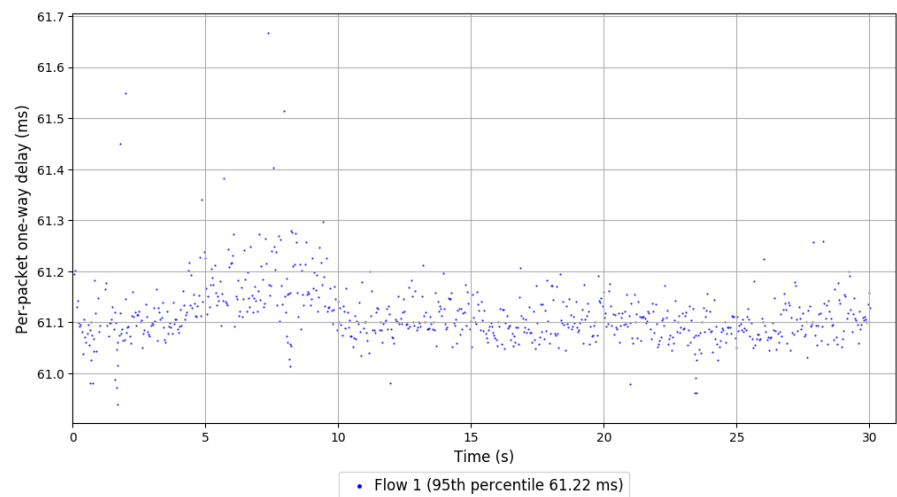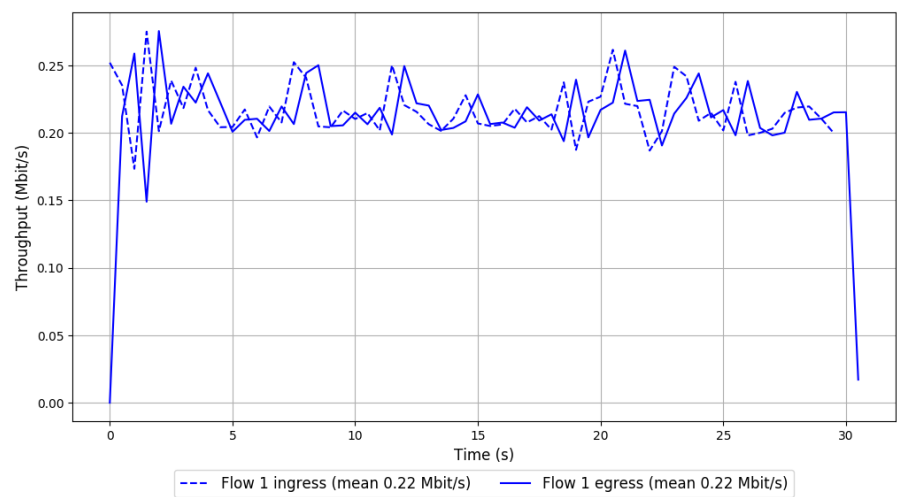
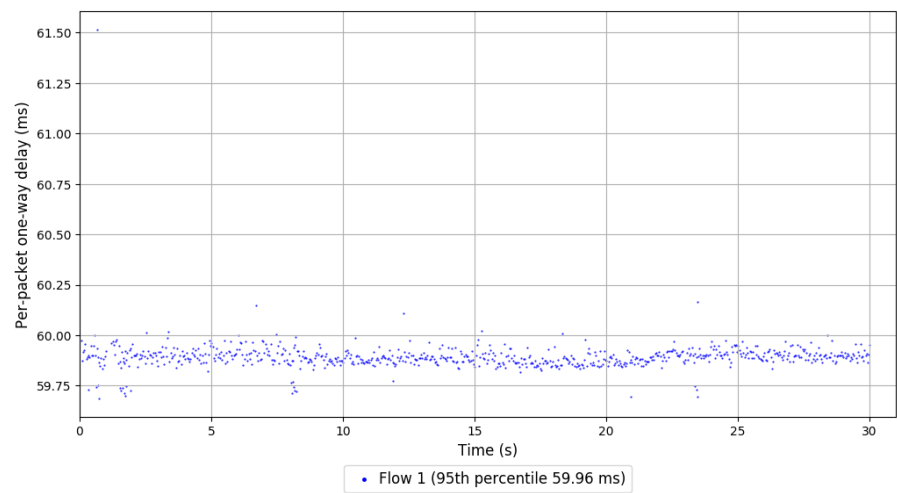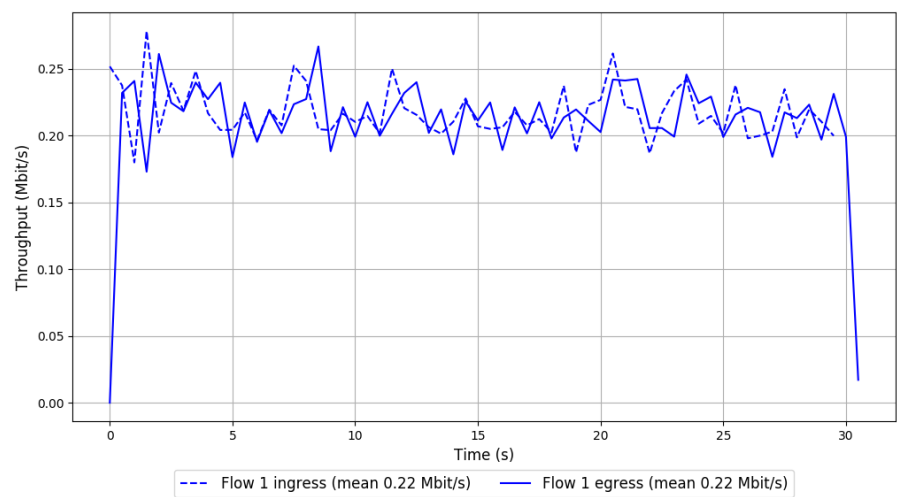Run 2: Report of SCReAM — Data Link

```
Run 3: Statistics of SCReAM

Start at: 2019-01-03 17:04:33
End at: 2019-01-03 17:05:03
Local clock offset: 0.343 ms
Remote clock offset: -0.053 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 59.964 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 59.964 ms
Loss rate: 0.00%
```

Run 3: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.22 Mbit/s) --- Flow 1 egress (mean 0.22 Mbit/s)

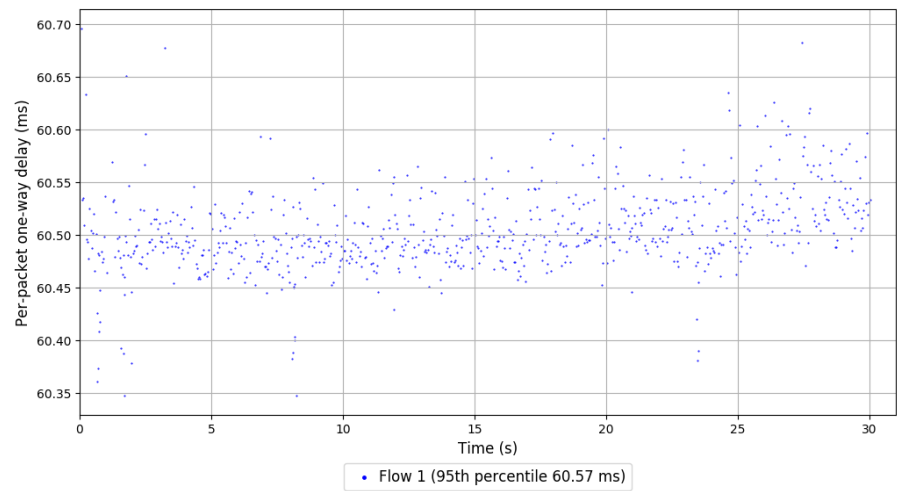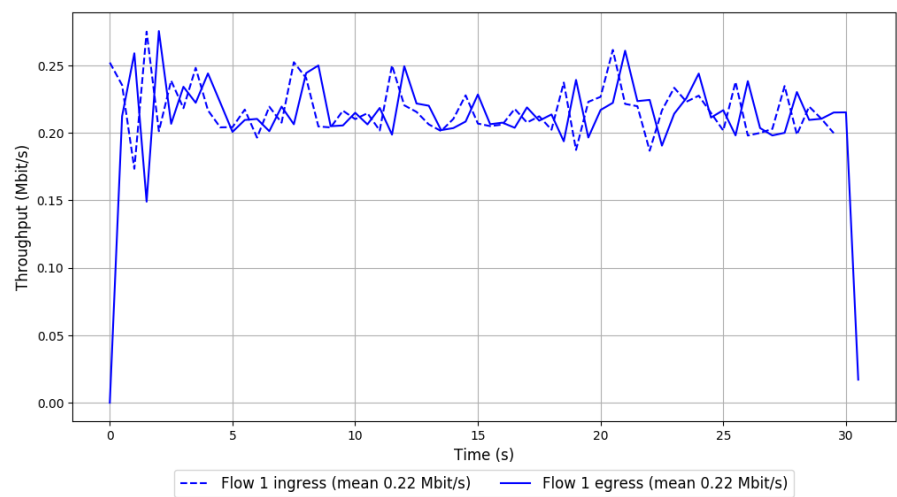Flow 1 (95th percentile 59.96 ms)

```
Run 4: Statistics of SCReAM

Start at: 2019-01-03 17:32:37
End at: 2019-01-03 17:33:07
Local clock offset: -0.057 ms
Remote clock offset: -0.032 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.574 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.574 ms
Loss rate: 0.00%
```
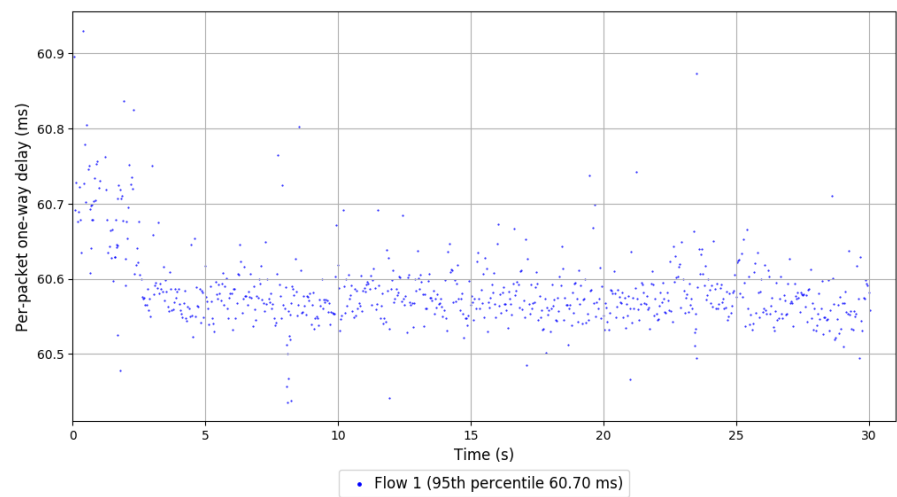
Run 4: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.22 Mbit/s)   Flow 1 egress (mean 0.22 Mbit/s)

Flow 1 (95th percentile 60.57 ms)

```
Run 5: Statistics of SCReAM

Start at: 2019-01-03 18:00:49
End at: 2019-01-03 18:01:19
Local clock offset: 0.168 ms
Remote clock offset: 0.283 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.699 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.22 Mbit/s
95th percentile per-packet one-way delay: 60.699 ms
Loss rate: 0.00%
```
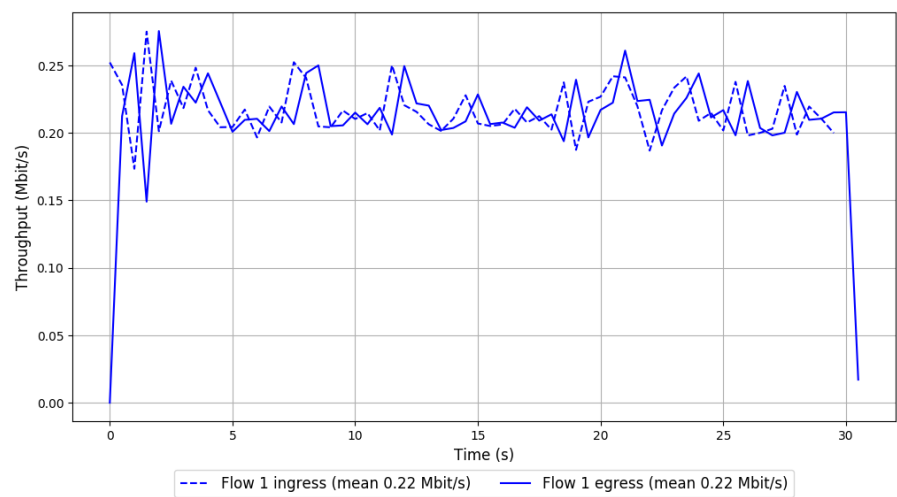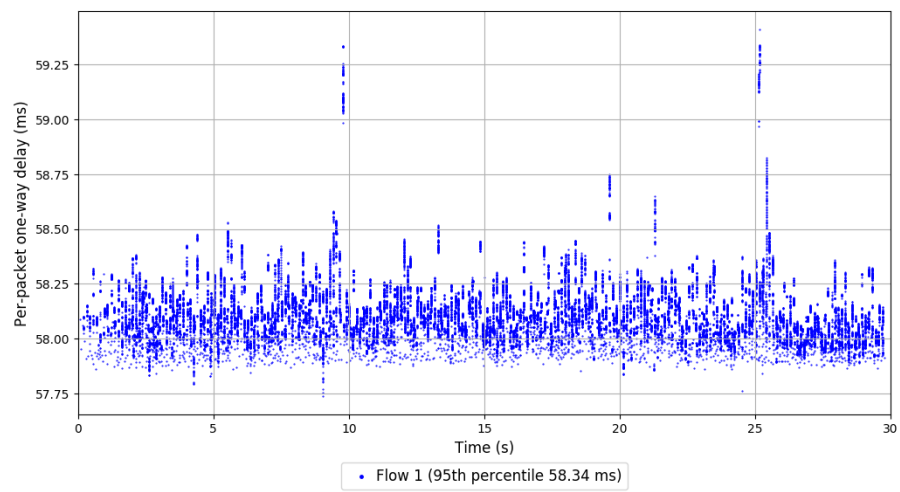
Run 5: Report of SCReAM — Data Link

Flow 1 ingress (mean 0.22 Mbit/s) Flow 1 egress (mean 0.22 Mbit/s)

Flow 1 (95th percentile 60.70 ms)

```
Run 1: Statistics of Sprout

Start at: 2019-01-03 15:52:20
End at: 2019-01-03 15:52:50
Local clock offset: -0.146 ms
Remote clock offset: 0.551 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 58.335 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.73 Mbit/s
95th percentile per-packet one-way delay: 58.335 ms
Loss rate: 0.00%
```
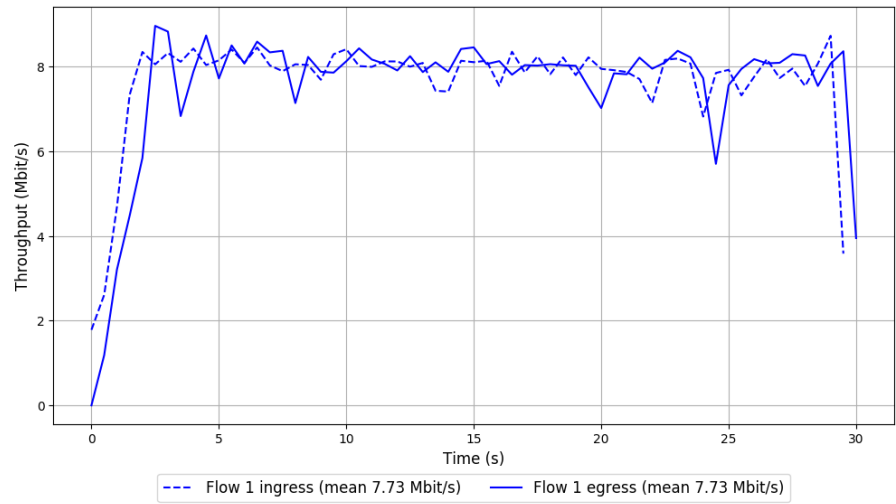
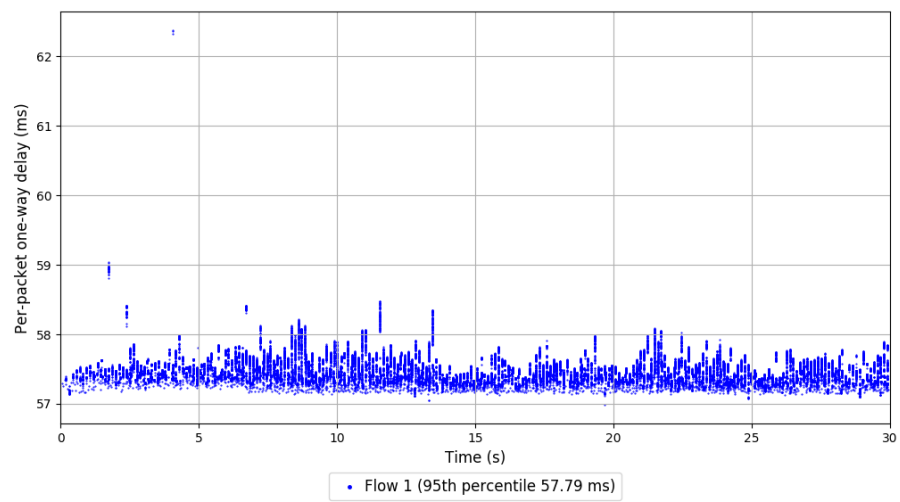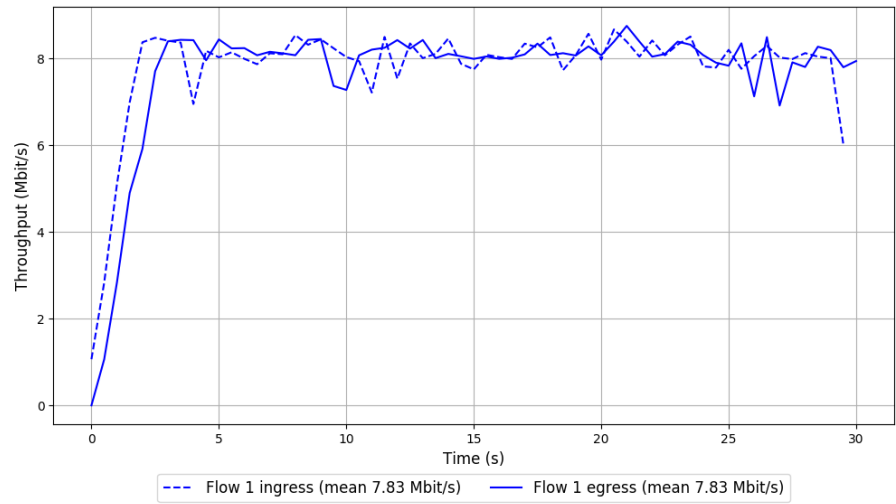Run 1: Report of Sprout — Data Link

```
Run 2: Statistics of Sprout

Start at: 2019-01-03 16:20:47
End at: 2019-01-03 16:21:17
Local clock offset: 0.256 ms
Remote clock offset: -0.035 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.83 Mbit/s
95th percentile per-packet one-way delay: 57.789 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.83 Mbit/s
95th percentile per-packet one-way delay: 57.789 ms
Loss rate: 0.00%
```

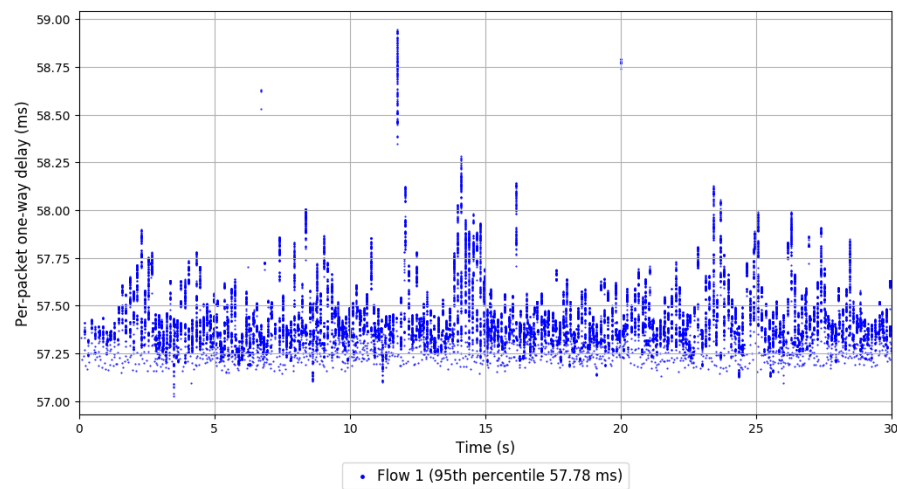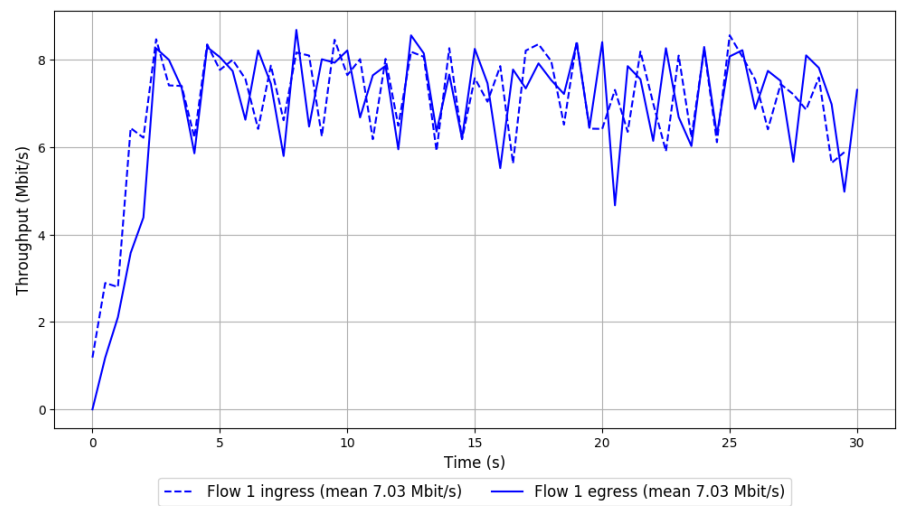Run 2: Report of Sprout — Data Link

```
Run 3: Statistics of Sprout

Start at: 2019-01-03 16:49:14
End at: 2019-01-03 16:49:44
Local clock offset: -0.32 ms
Remote clock offset: -0.303 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.03 Mbit/s
95th percentile per-packet one-way delay: 57.784 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.03 Mbit/s
95th percentile per-packet one-way delay: 57.784 ms
Loss rate: 0.00%
```

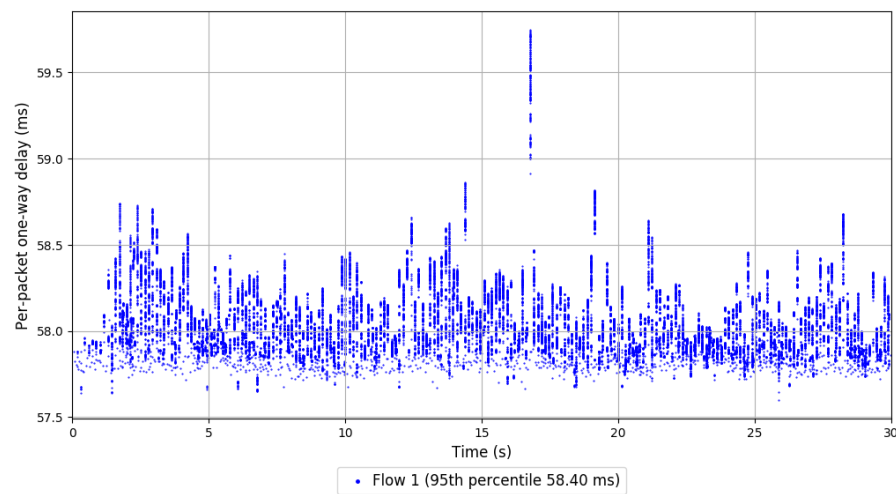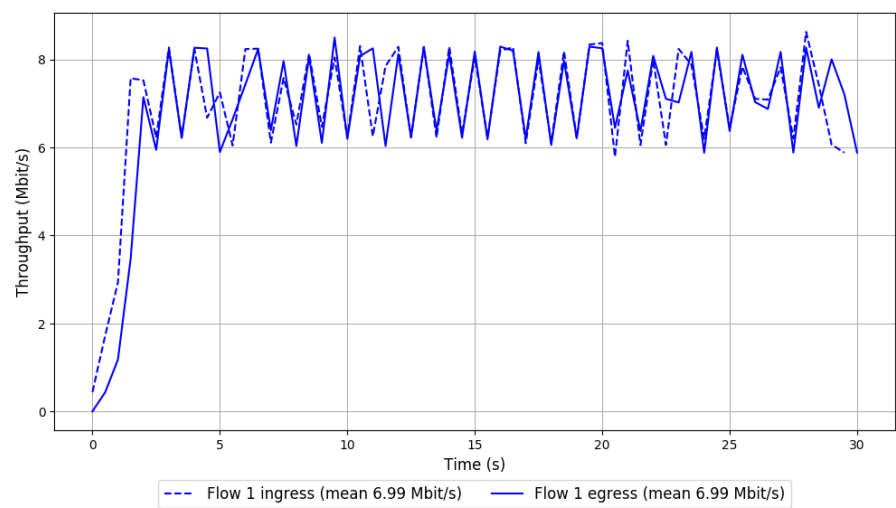Run 3: Report of Sprout — Data Link

```
Run 4: Statistics of Sprout

Start at: 2019-01-03 17:17:34
End at: 2019-01-03 17:18:04
Local clock offset: -0.41 ms
Remote clock offset: -0.193 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 6.99 Mbit/s
95th percentile per-packet one-way delay: 58.402 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 6.99 Mbit/s
95th percentile per-packet one-way delay: 58.402 ms
Loss rate: 0.00%
```

Run 4: Report of Sprout — Data Link

```
Run 5: Statistics of Sprout

Start at: 2019-01-03 17:45:33
End at: 2019-01-03 17:46:03
Local clock offset: -0.492 ms
Remote clock offset: 0.046 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 7.97 Mbit/s
95th percentile per-packet one-way delay: 57.979 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 7.97 Mbit/s
95th percentile per-packet one-way delay: 57.979 ms
Loss rate: 0.00%
```
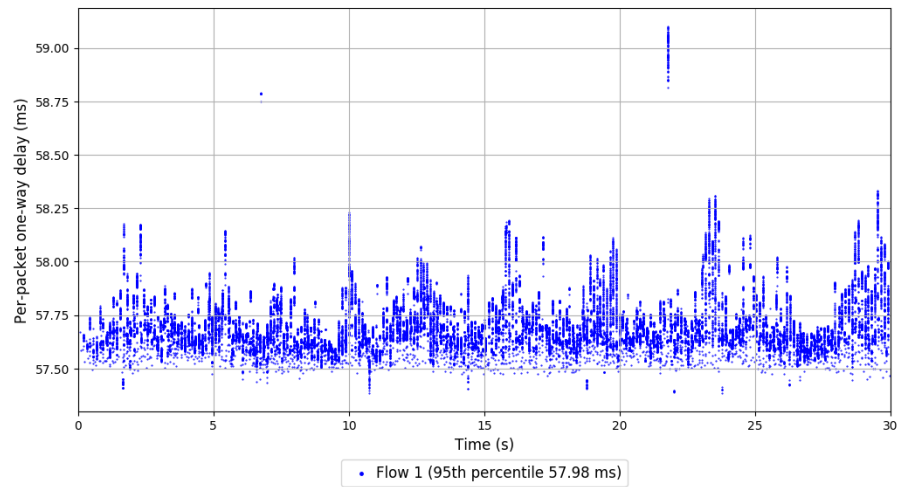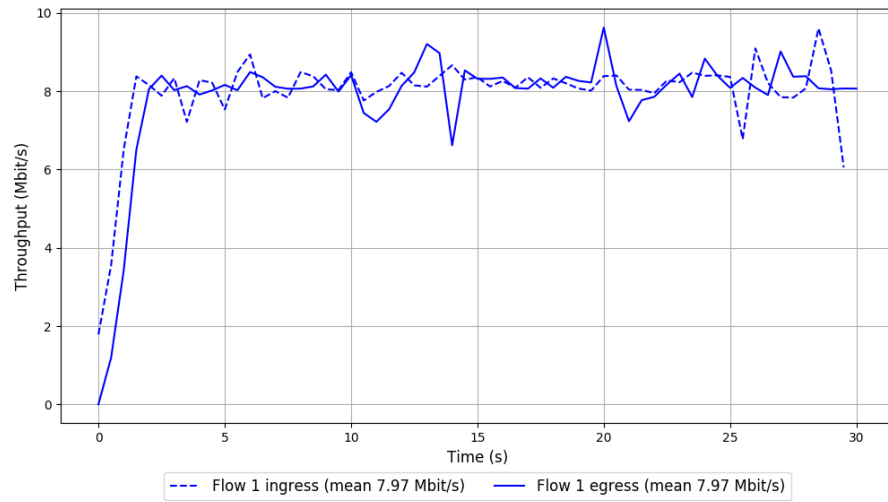
Run 5: Report of Sprout — Data Link

Flow 1 ingress (mean 7.97 Mbit/s) --- Flow 1 egress (mean 7.97 Mbit/s)

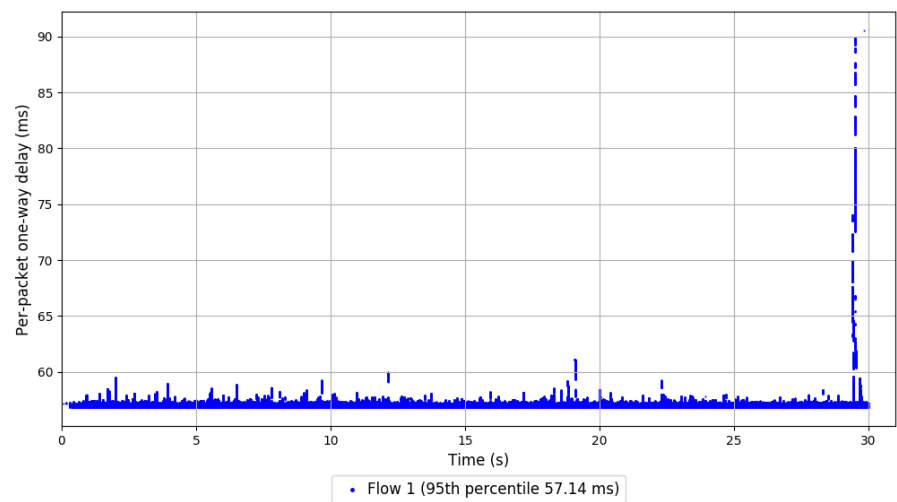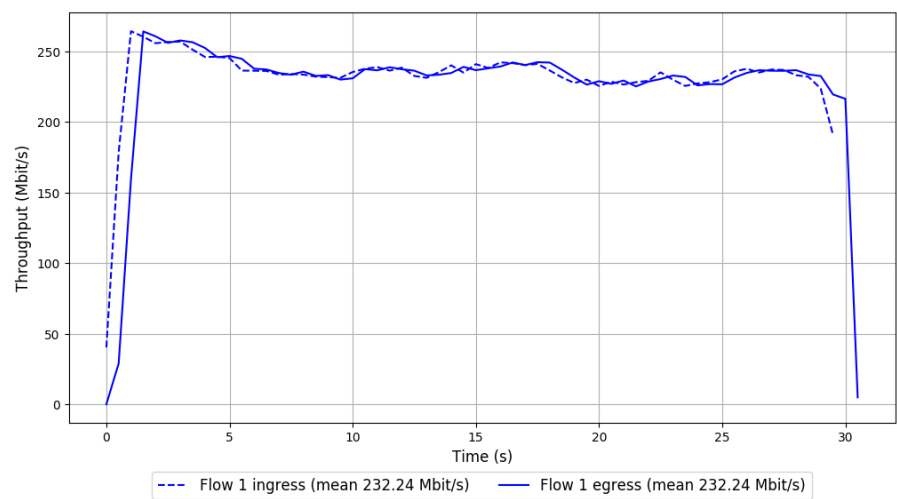Flow 1 (95th percentile 57.98 ms)

```
Run 1: Statistics of TaoVA-100x

Start at: 2019-01-03 15:53:29
End at: 2019-01-03 15:53:59
Local clock offset: -0.099 ms
Remote clock offset: -0.307 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 232.24 Mbit/s
95th percentile per-packet one-way delay: 57.144 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 232.24 Mbit/s
95th percentile per-packet one-way delay: 57.144 ms
Loss rate: 0.00%
```

Run 1: Report of TaoVA-100x — Data Link

```
Run 2: Statistics of TaoVA-100x

Start at: 2019-01-03 16:21:55
End at: 2019-01-03 16:22:25
Local clock offset: -0.527 ms
Remote clock offset: -0.24 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 228.26 Mbit/s
95th percentile per-packet one-way delay: 57.702 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 228.26 Mbit/s
95th percentile per-packet one-way delay: 57.702 ms
Loss rate: 0.00%
```
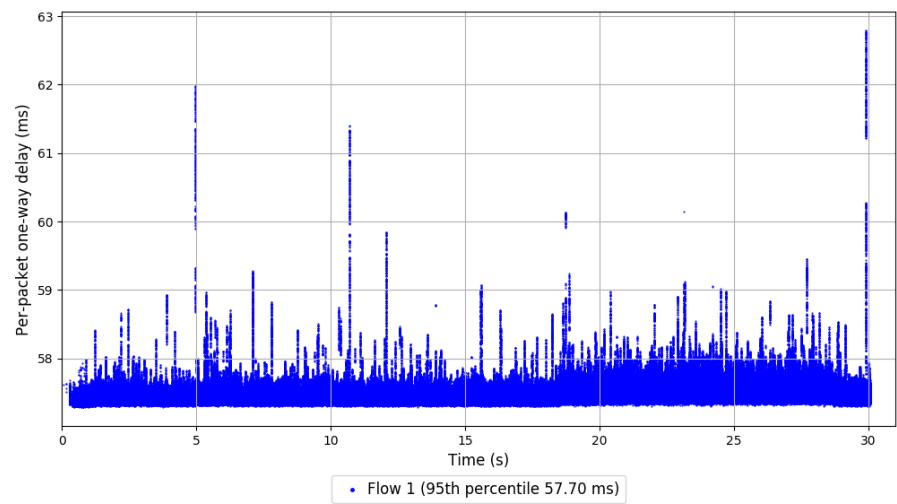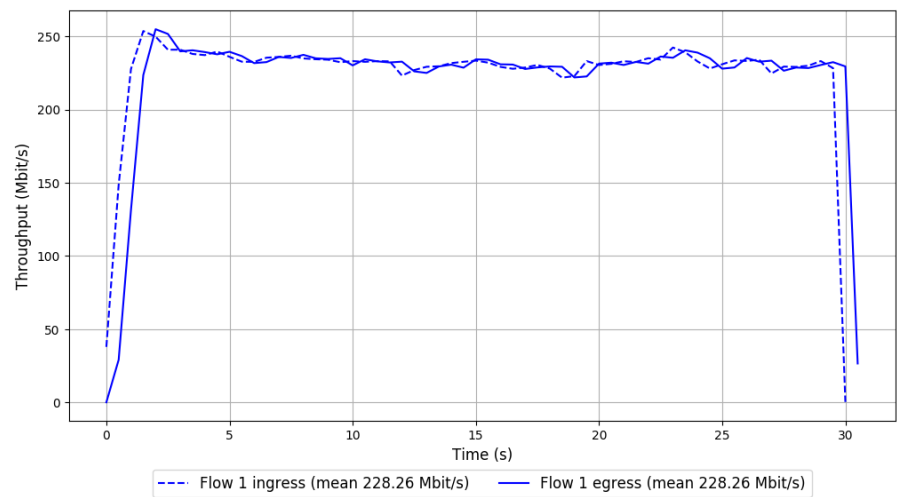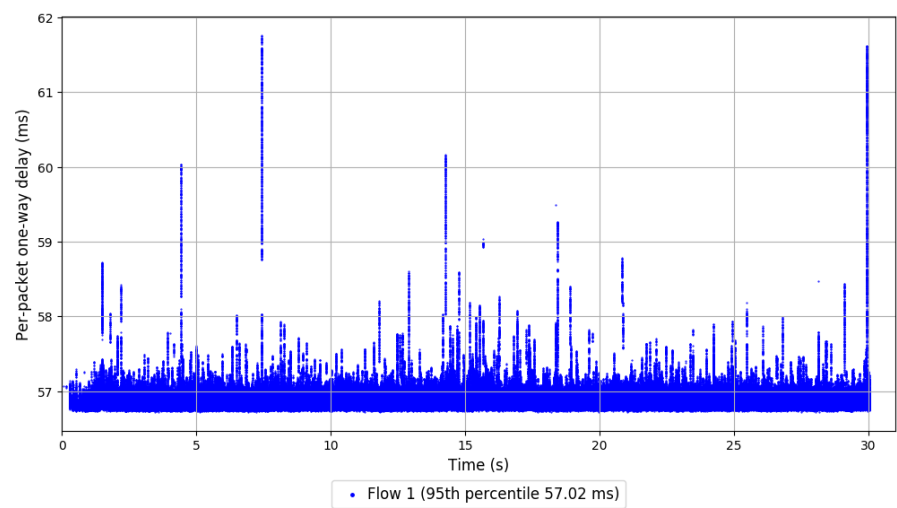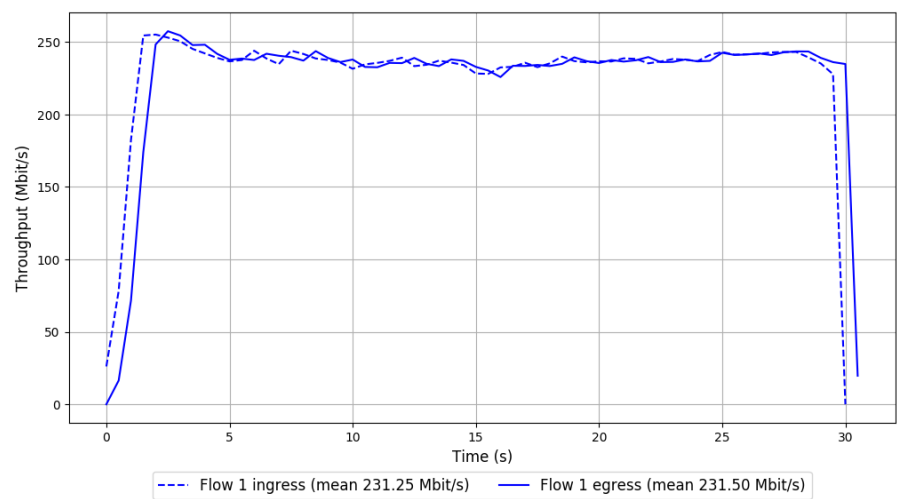
Run 2: Report of TaoVA-100x — Data Link

```
Run 3: Statistics of TaoVA-100x

Start at: 2019-01-03 16:50:23
End at: 2019-01-03 16:50:53
Local clock offset: -0.106 ms
Remote clock offset: -0.298 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 231.50 Mbit/s
95th percentile per-packet one-way delay: 57.023 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 231.50 Mbit/s
95th percentile per-packet one-way delay: 57.023 ms
Loss rate: 0.00%
```

Run 3: Report of TaoVA-100x — Data Link

```
Run 4: Statistics of TaoVA-100x

Start at: 2019-01-03 17:18:42
End at: 2019-01-03 17:19:12
Local clock offset: 0.262 ms
Remote clock offset: 0.023 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 238.27 Mbit/s
95th percentile per-packet one-way delay: 60.085 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 238.27 Mbit/s
95th percentile per-packet one-way delay: 60.085 ms
Loss rate: 0.00%
```
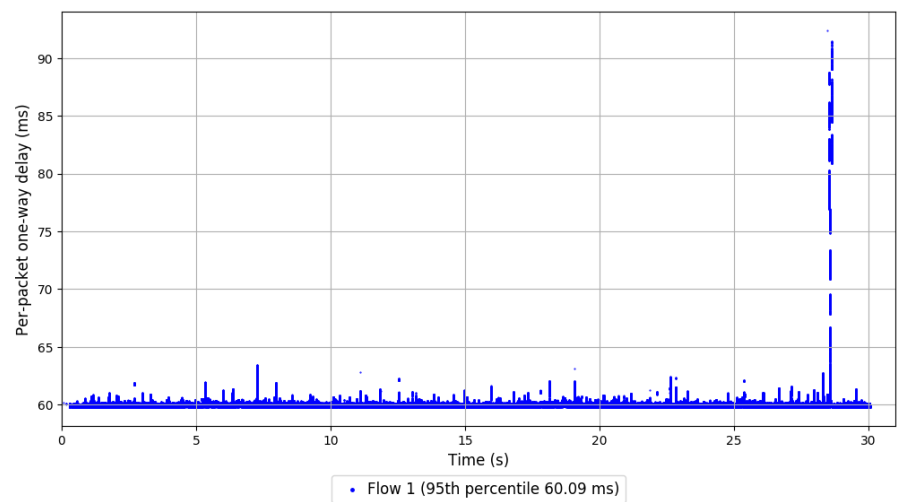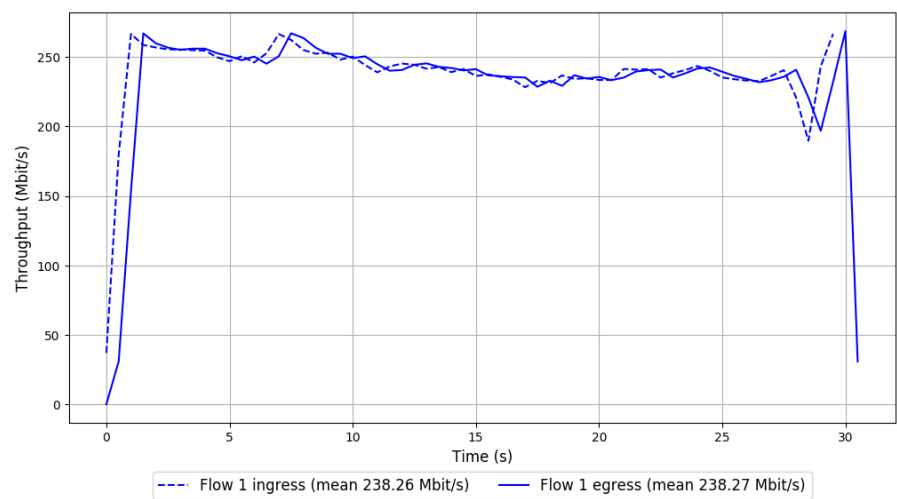
Run 4: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 238.26 Mbit/s)   Flow 1 egress (mean 238.27 Mbit/s)
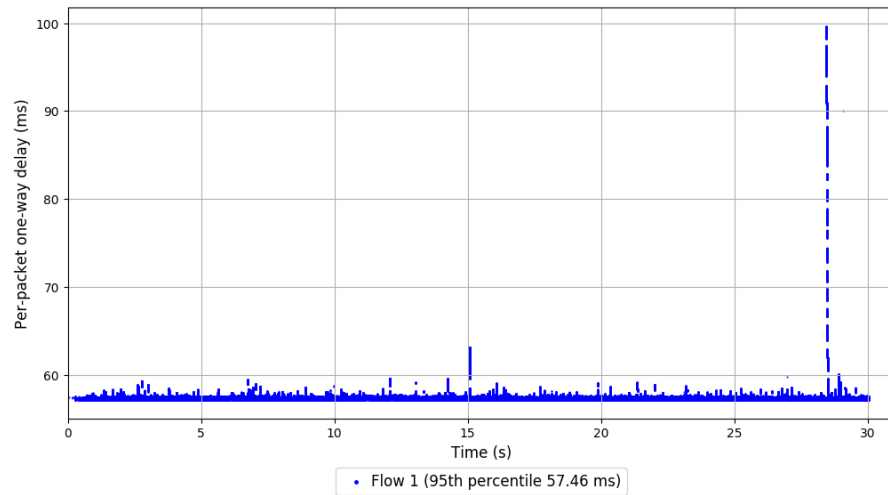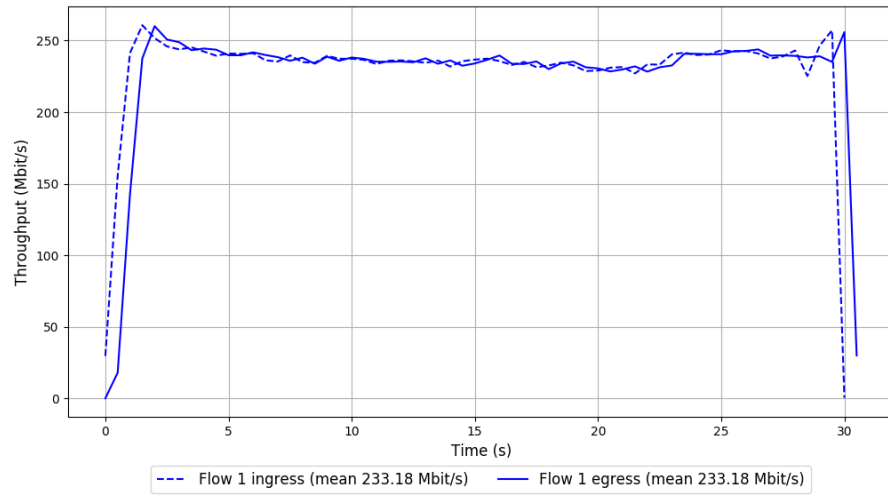

Flow 1 (95th percentile 60.09 ms)

```
Run 5: Statistics of TaoVA-100x

Start at: 2019-01-03 17:46:42
End at: 2019-01-03 17:47:12
Local clock offset: -0.451 ms
Remote clock offset: -0.202 ms


# Below is generated by plot.py at 2019-01-03 20:08:13
# Datalink statistics
-- Total of 1 flow:
Average throughput: 233.18 Mbit/s
95th percentile per-packet one-way delay: 57.459 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 233.18 Mbit/s
95th percentile per-packet one-way delay: 57.459 ms
Loss rate: 0.00%
```

Run 5: Report of TaoVA-100x — Data Link

Flow 1 ingress (mean 233.18 Mbit/s)   Flow 1 egress (mean 233.18 Mbit/s)
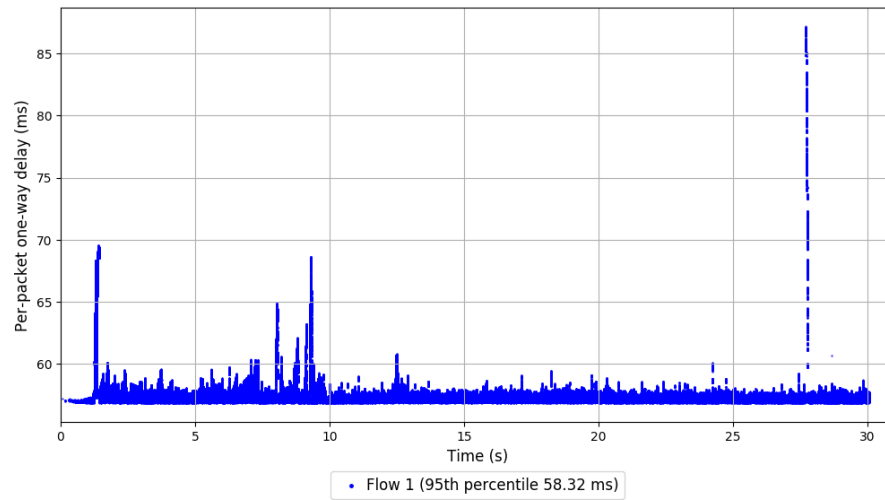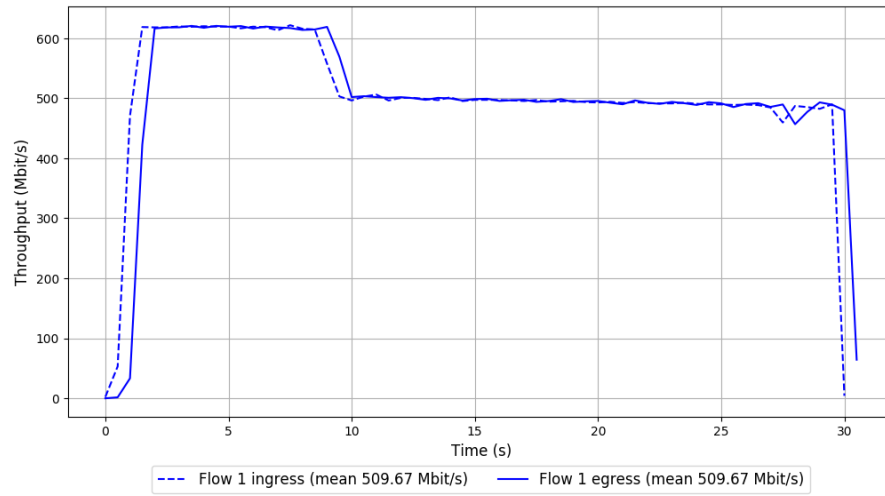

Flow 1 (95th percentile 57.46 ms)

```
Run 1: Statistics of TCP Vegas

Start at: 2019-01-03 16:06:09
End at: 2019-01-03 16:06:39
Local clock offset: 0.16 ms
Remote clock offset: -0.097 ms


# Below is generated by plot.py at 2019-01-03 20:08:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 509.67 Mbit/s
95th percentile per-packet one-way delay: 58.320 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 509.67 Mbit/s
95th percentile per-packet one-way delay: 58.320 ms
Loss rate: 0.00%
```
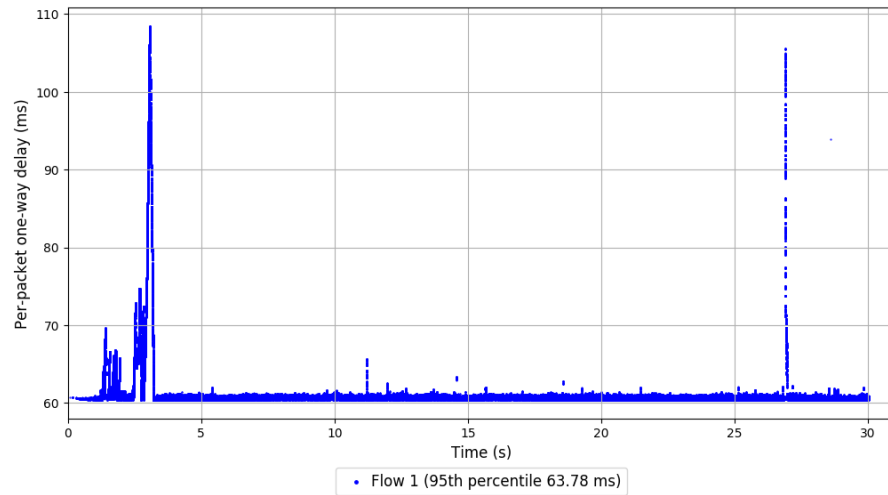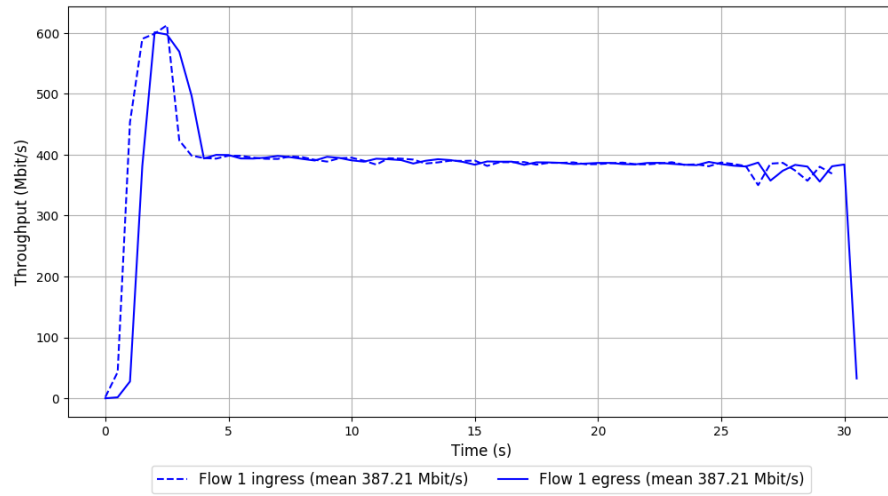
Run 1: Report of TCP Vegas — Data Link

```
Run 2: Statistics of TCP Vegas

Start at: 2019-01-03 16:34:35
End at: 2019-01-03 16:35:05
Local clock offset: -0.114 ms
Remote clock offset: -0.012 ms


# Below is generated by plot.py at 2019-01-03 20:16:05
# Datalink statistics
-- Total of 1 flow:
Average throughput: 387.21 Mbit/s
95th percentile per-packet one-way delay: 63.776 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 387.21 Mbit/s
95th percentile per-packet one-way delay: 63.776 ms
Loss rate: 0.00%
```
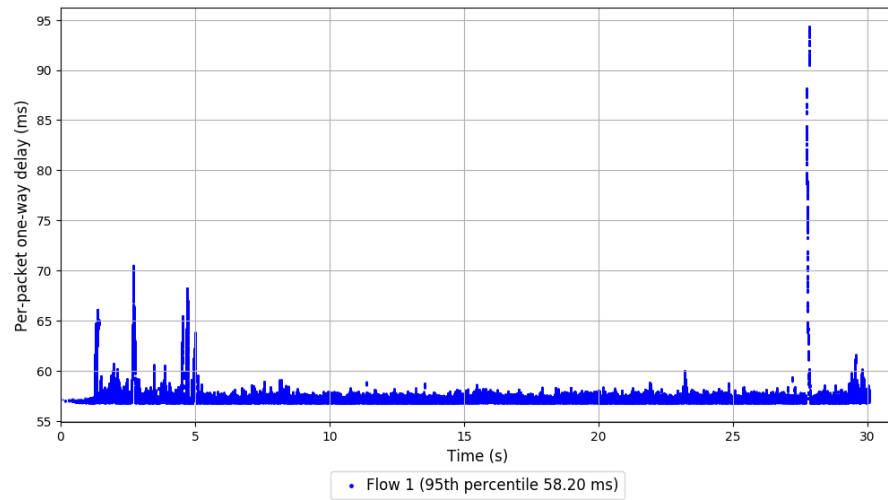
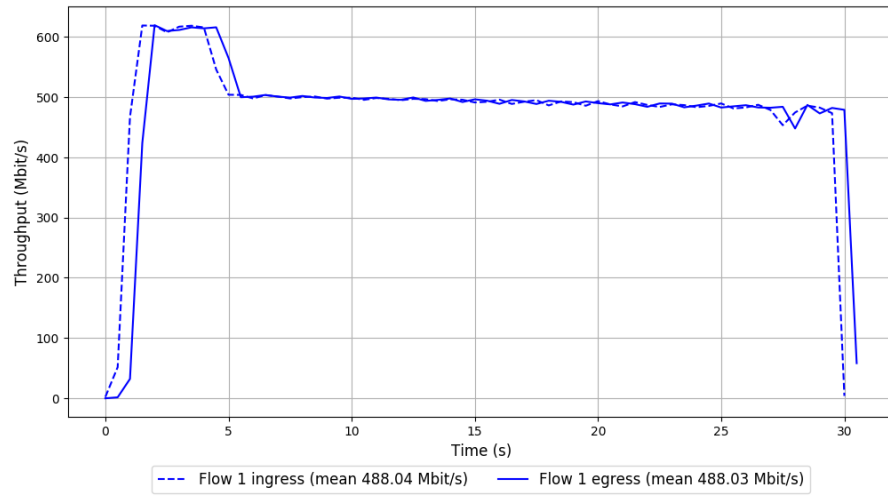Run 2: Report of TCP Vegas — Data Link

```
Run 3: Statistics of TCP Vegas

Start at: 2019-01-03 17:03:01
End at: 2019-01-03 17:03:31
Local clock offset: 0.288 ms
Remote clock offset: -0.273 ms


# Below is generated by plot.py at 2019-01-03 20:18:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 488.03 Mbit/s
95th percentile per-packet one-way delay: 58.205 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 488.03 Mbit/s
95th percentile per-packet one-way delay: 58.205 ms
Loss rate: 0.00%
```

Run 3: Report of TCP Vegas — Data Link

Flow 1 ingress (mean 488.04 Mbit/s) —— Flow 1 egress (mean 488.03 Mbit/s)
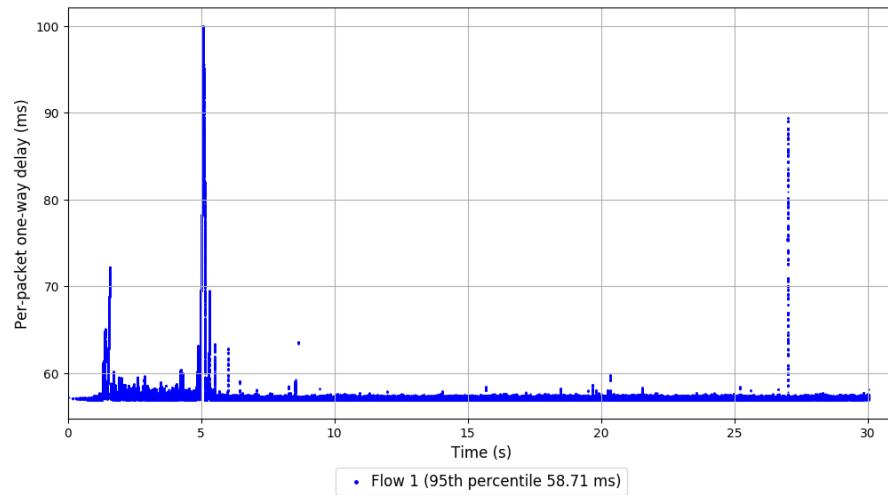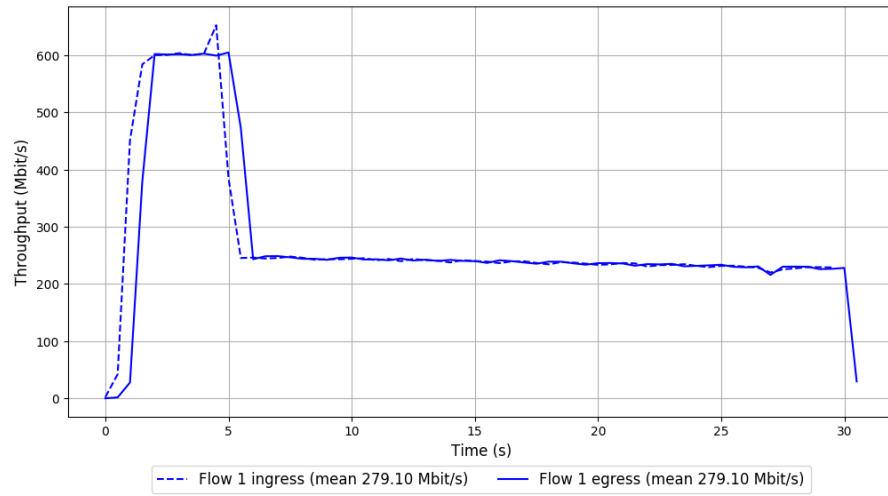

• Flow 1 (95th percentile 58.20 ms)

```
Run 4: Statistics of TCP Vegas

Start at: 2019-01-03 17:31:15
End at: 2019-01-03 17:31:45
Local clock offset: 0.068 ms
Remote clock offset: 0.03 ms


# Below is generated by plot.py at 2019-01-03 20:18:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 279.10 Mbit/s
95th percentile per-packet one-way delay: 58.712 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 279.10 Mbit/s
95th percentile per-packet one-way delay: 58.712 ms
Loss rate: 0.00%
```
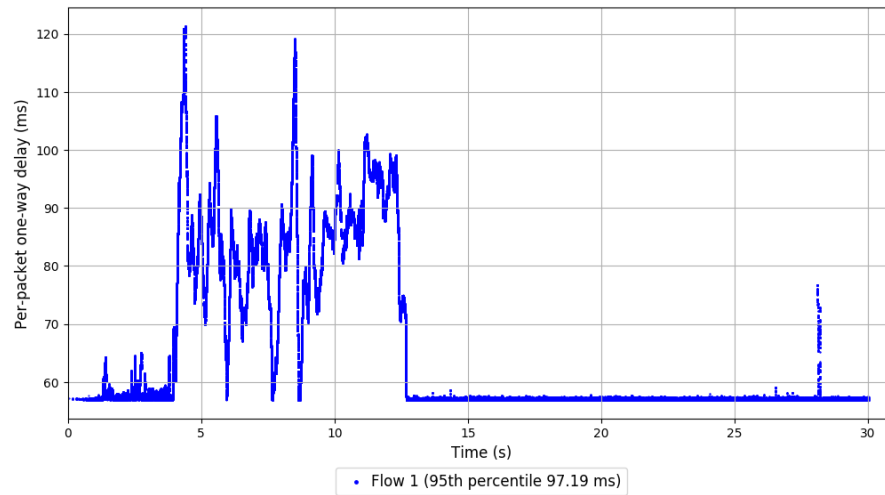
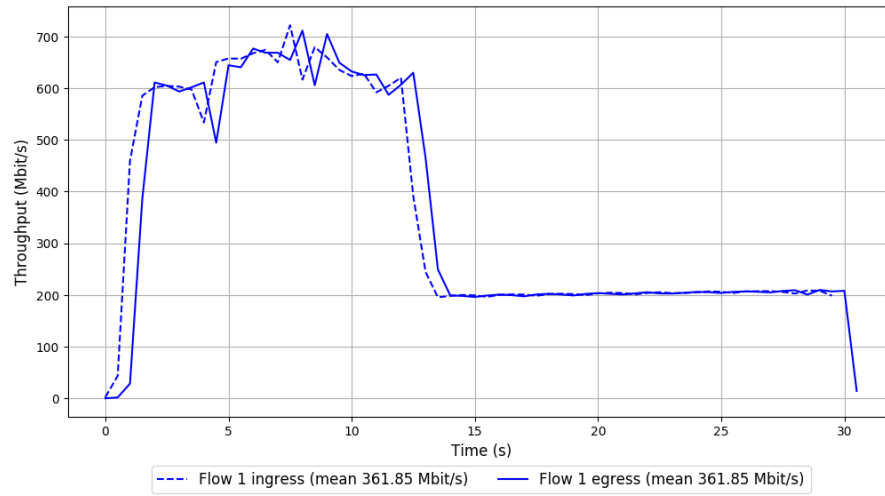Run 4: Report of TCP Vegas — Data Link

```
Run 5: Statistics of TCP Vegas

Start at: 2019-01-03 17:59:21
End at: 2019-01-03 17:59:51
Local clock offset: -0.049 ms
Remote clock offset: -0.027 ms


# Below is generated by plot.py at 2019-01-03 20:18:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 361.85 Mbit/s
95th percentile per-packet one-way delay: 97.191 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 361.85 Mbit/s
95th percentile per-packet one-way delay: 97.191 ms
Loss rate: 0.00%
```

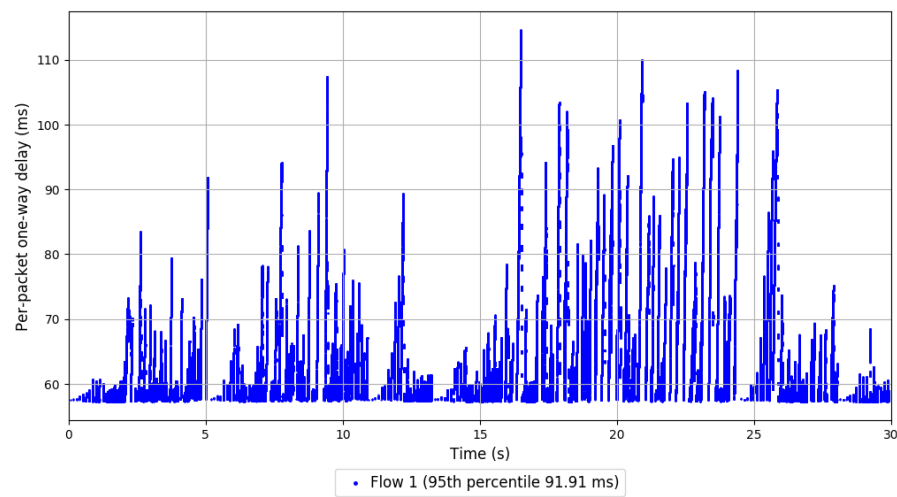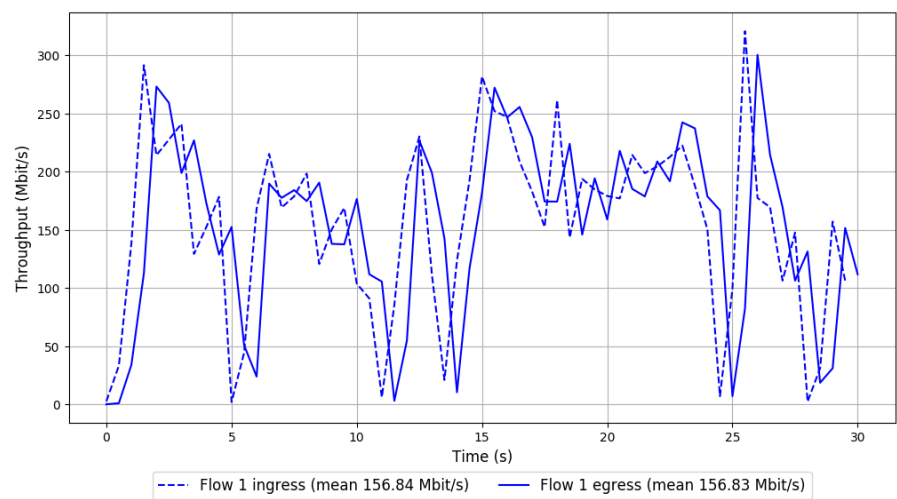Run 5: Report of TCP Vegas — Data Link

```
Run 1: Statistics of Verus

Start at: 2019-01-03 15:45:54
End at: 2019-01-03 15:46:24
Local clock offset: -0.473 ms
Remote clock offset: -0.202 ms


# Below is generated by plot.py at 2019-01-03 20:18:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 156.83 Mbit/s
95th percentile per-packet one-way delay: 91.914 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 156.83 Mbit/s
95th percentile per-packet one-way delay: 91.914 ms
Loss rate: 0.00%
```
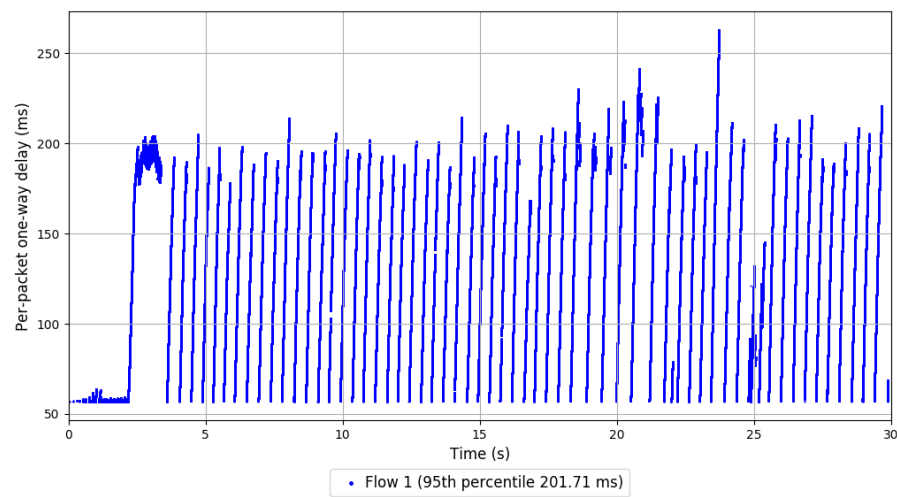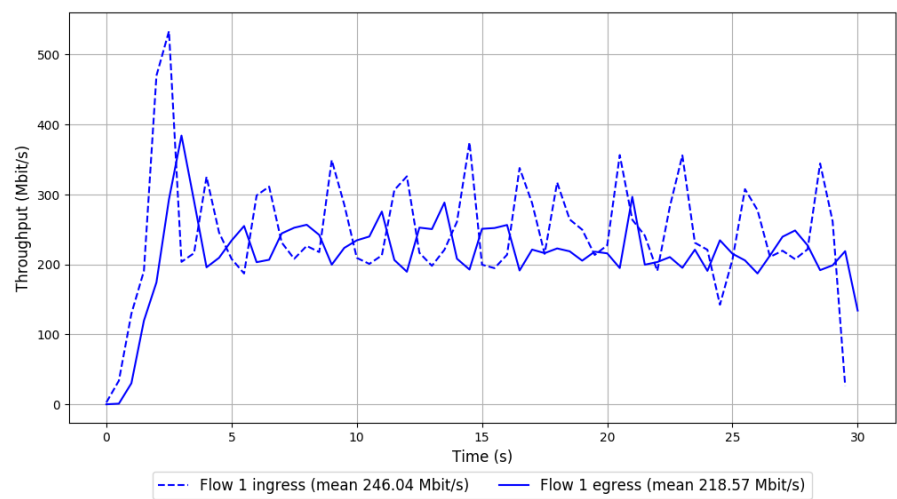
Run 1: Report of Verus — Data Link

```
Run 2: Statistics of Verus

Start at: 2019-01-03 16:14:12
End at: 2019-01-03 16:14:42
Local clock offset: 0.164 ms
Remote clock offset: -0.525 ms


# Below is generated by plot.py at 2019-01-03 20:18:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 218.57 Mbit/s
95th percentile per-packet one-way delay: 201.706 ms
Loss rate: 11.16%
-- Flow 1:
Average throughput: 218.57 Mbit/s
95th percentile per-packet one-way delay: 201.706 ms
Loss rate: 11.16%
```
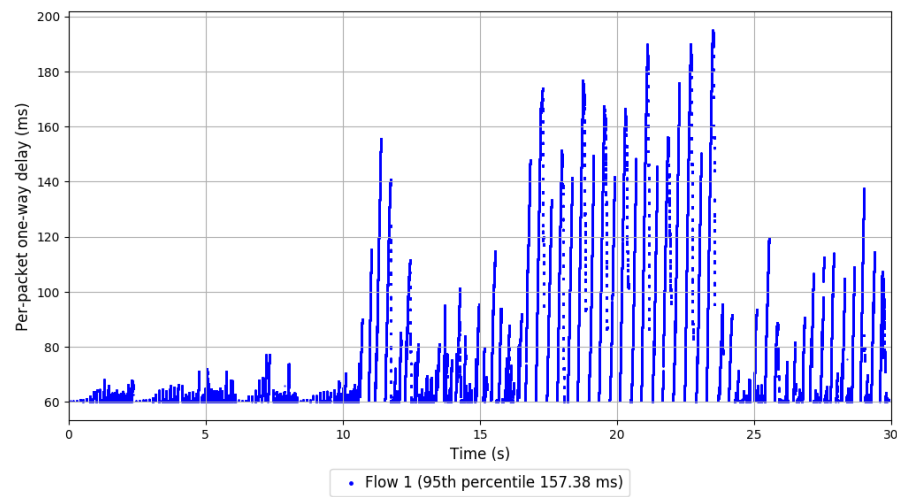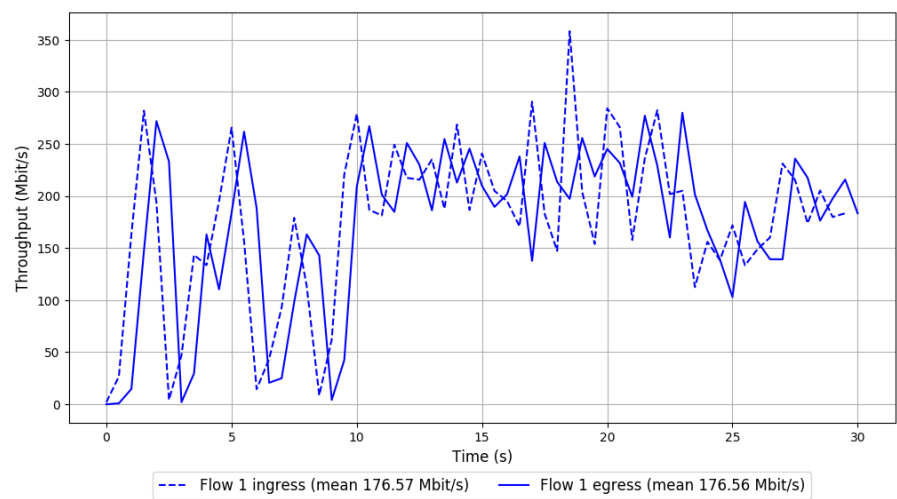
Run 2: Report of Verus — Data Link

```
Run 3: Statistics of Verus

Start at: 2019-01-03 16:42:41
End at: 2019-01-03 16:43:11
Local clock offset: -0.211 ms
Remote clock offset: -0.036 ms


# Below is generated by plot.py at 2019-01-03 20:18:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 176.56 Mbit/s
95th percentile per-packet one-way delay: 157.381 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 176.56 Mbit/s
95th percentile per-packet one-way delay: 157.381 ms
Loss rate: 0.00%
```
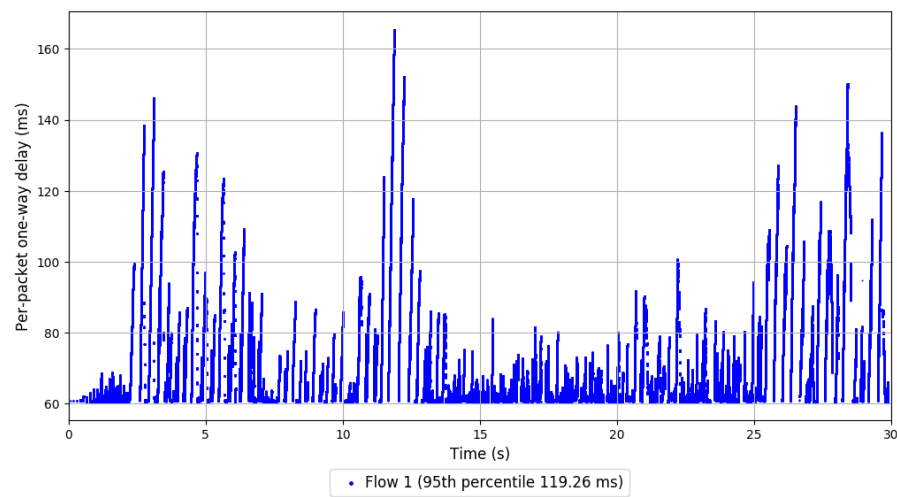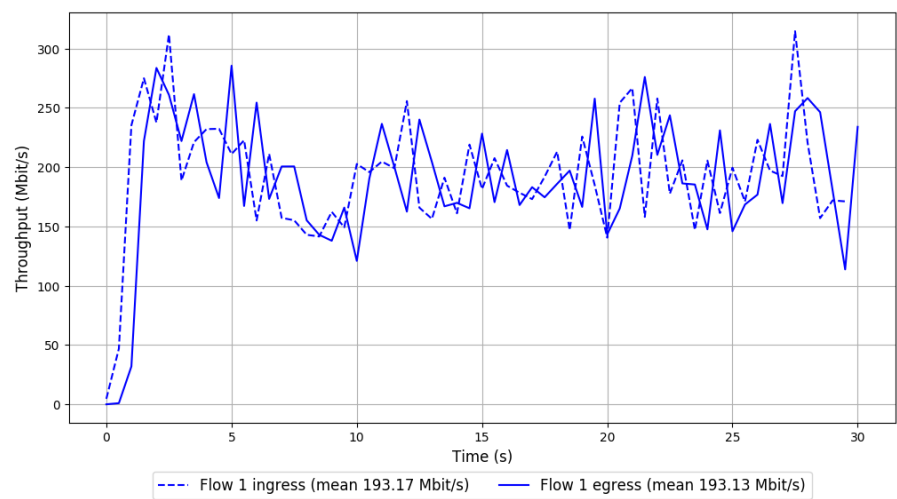
Run 3: Report of Verus — Data Link

```
Run 4: Statistics of Verus

Start at: 2019-01-03 17:11:04
End at: 2019-01-03 17:11:34
Local clock offset: -0.429 ms
Remote clock offset: -0.247 ms


# Below is generated by plot.py at 2019-01-03 20:18:03
# Datalink statistics
-- Total of 1 flow:
Average throughput: 193.13 Mbit/s
95th percentile per-packet one-way delay: 119.263 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 193.13 Mbit/s
95th percentile per-packet one-way delay: 119.263 ms
Loss rate: 0.02%
```

Run 4: Report of Verus — Data Link

Flow 1 ingress (mean 193.17 Mbit/s)   Flow 1 egress (mean 193.13 Mbit/s)

Flow 1 (95th percentile 119.26 ms)

```
Run 5: Statistics of Verus

Start at: 2019-01-03 17:39:11
End at: 2019-01-03 17:39:41
Local clock offset: -0.076 ms
Remote clock offset: 0.179 ms


# Below is generated by plot.py at 2019-01-03 20:18:55
# Datalink statistics
-- Total of 1 flow:
Average throughput: 143.52 Mbit/s
95th percentile per-packet one-way delay: 131.543 ms
Loss rate: 0.03%
-- Flow 1:
Average throughput: 143.52 Mbit/s
95th percentile per-packet one-way delay: 131.543 ms
Loss rate: 0.03%
```
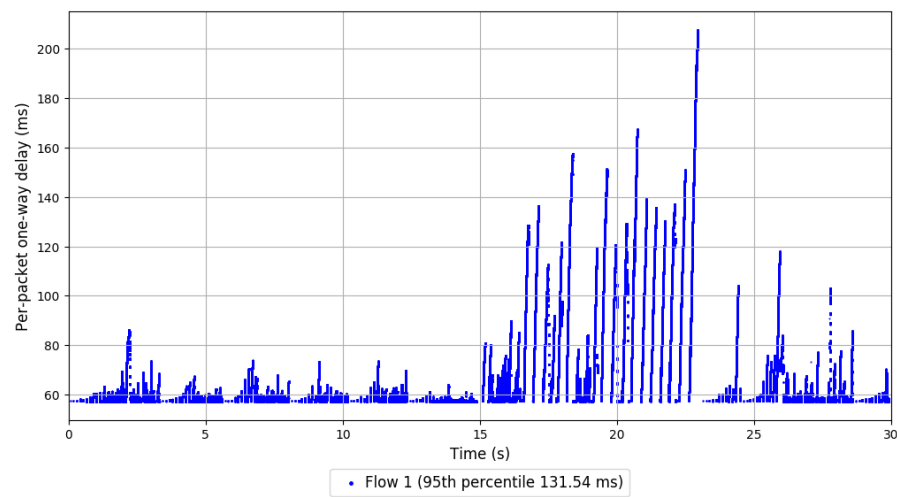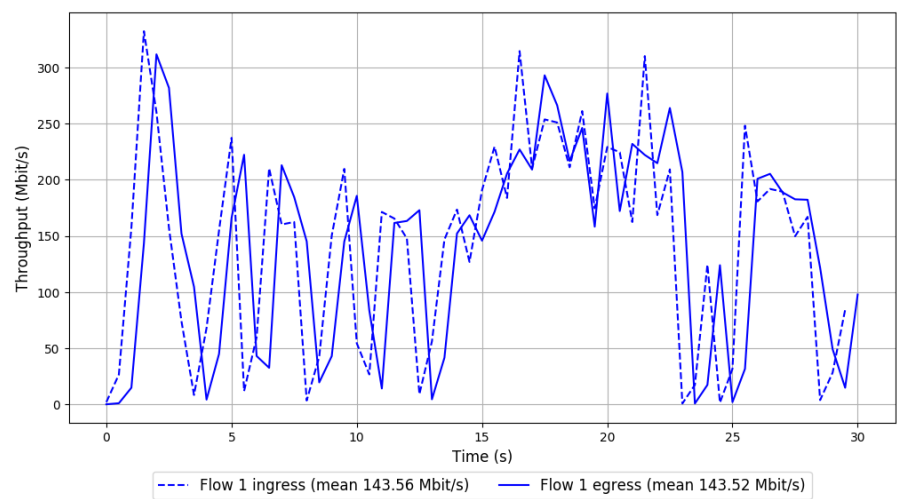
Run 5: Report of Verus — Data Link

```
Run 1: Statistics of PCC-Vivace

Start at: 2019-01-03 15:44:16
End at: 2019-01-03 15:44:46
Local clock offset: -0.26 ms
Remote clock offset: 0.092 ms


# Below is generated by plot.py at 2019-01-03 20:22:09
# Datalink statistics
-- Total of 1 flow:
Average throughput: 413.69 Mbit/s
95th percentile per-packet one-way delay: 61.171 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 413.69 Mbit/s
95th percentile per-packet one-way delay: 61.171 ms
Loss rate: 0.00%
```
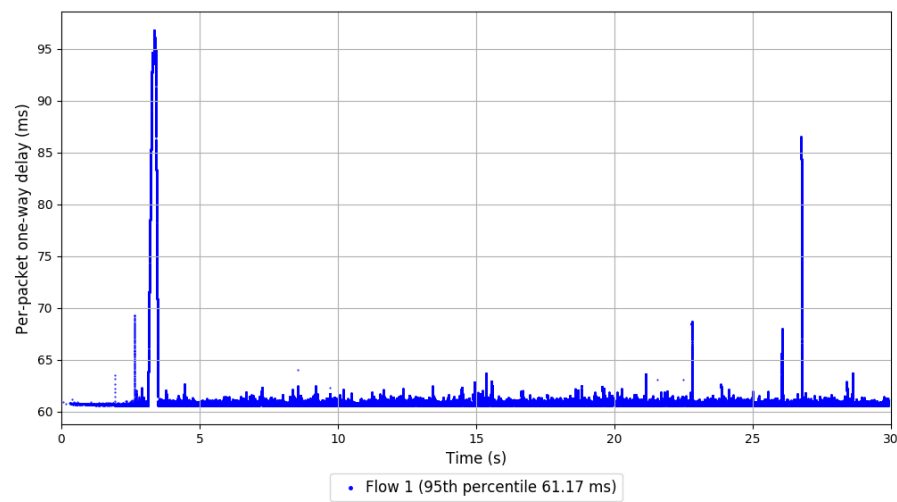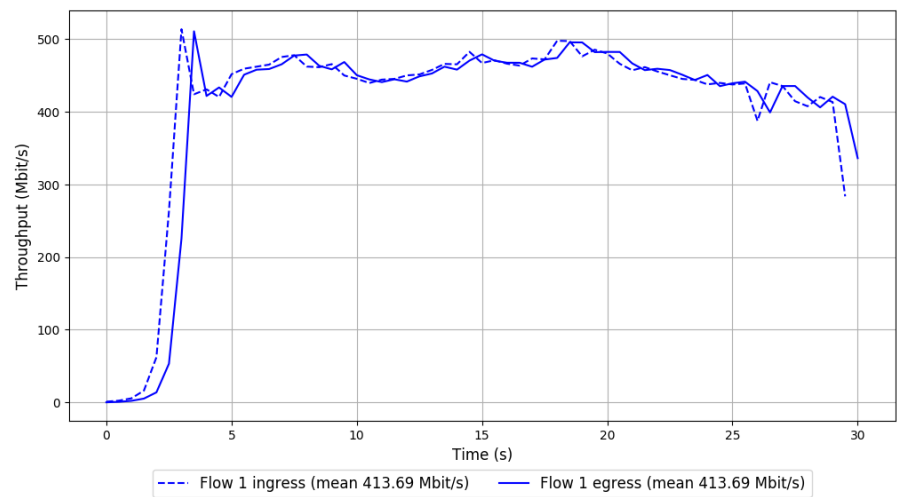
Run 1: Report of PCC-Vivace — Data Link

```
Run 2: Statistics of PCC-Vivace

Start at: 2019-01-03 16:12:38
End at: 2019-01-03 16:13:08
Local clock offset: -0.249 ms
Remote clock offset: -0.18 ms


# Below is generated by plot.py at 2019-01-03 20:22:47
# Datalink statistics
-- Total of 1 flow:
Average throughput: 398.92 Mbit/s
95th percentile per-packet one-way delay: 57.467 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 398.92 Mbit/s
95th percentile per-packet one-way delay: 57.467 ms
Loss rate: 0.00%
```
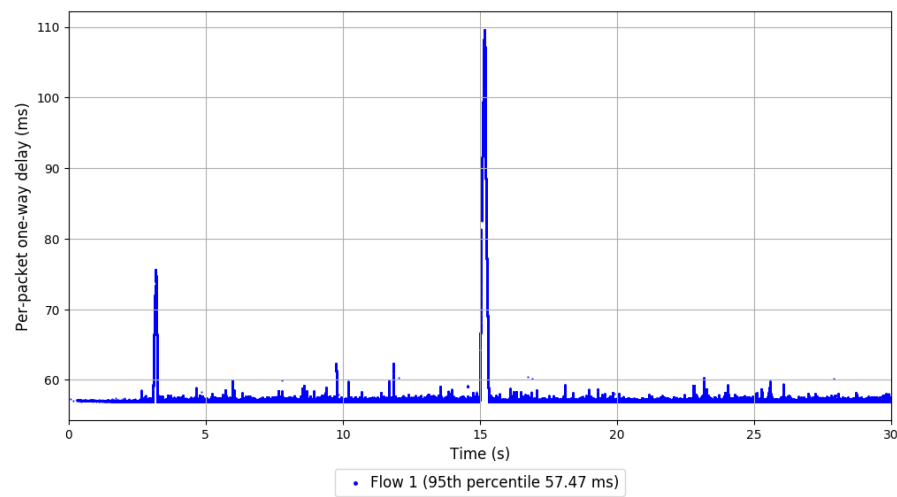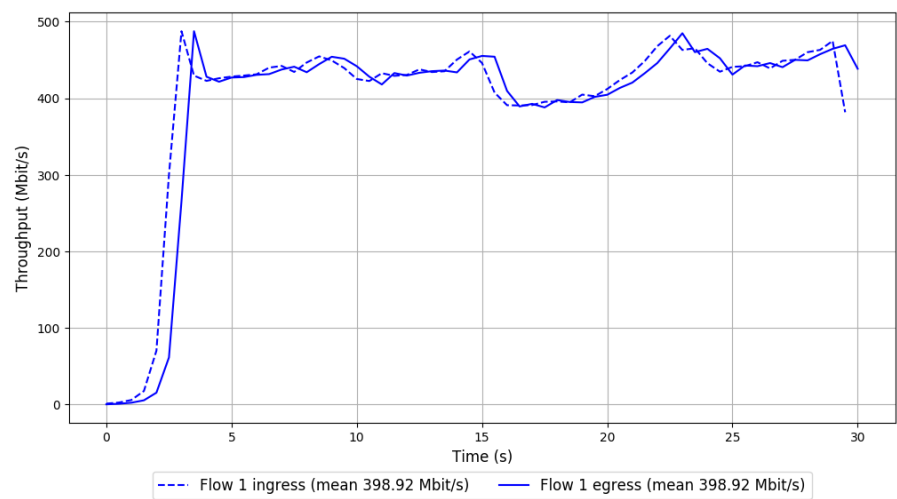
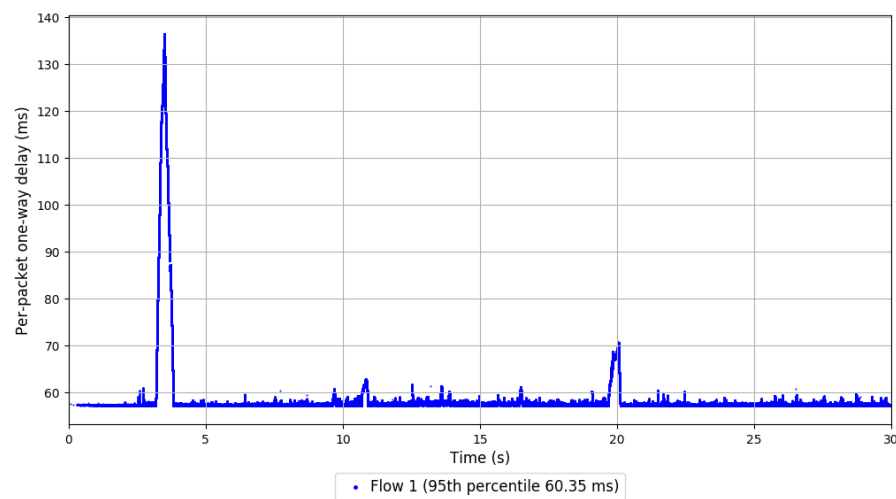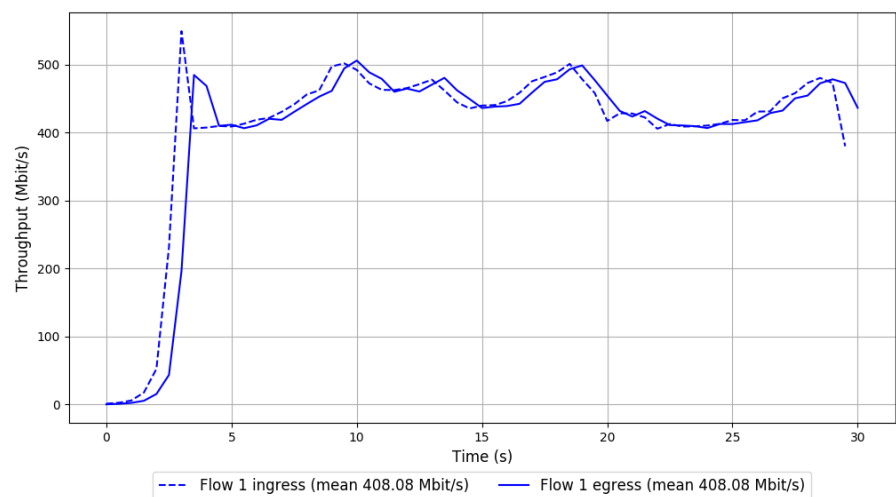## Run 2: Report of PCC-Vivace — Data Link

```
Run 3: Statistics of PCC-Vivace

Start at: 2019-01-03 16:41:02
End at: 2019-01-03 16:41:32
Local clock offset: -0.585 ms
Remote clock offset: -0.335 ms


# Below is generated by plot.py at 2019-01-03 20:22:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 408.08 Mbit/s
95th percentile per-packet one-way delay: 60.348 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 408.08 Mbit/s
95th percentile per-packet one-way delay: 60.348 ms
Loss rate: 0.00%
```

Run 3: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 408.08 Mbit/s) ----
Flow 1 egress (mean 408.08 Mbit/s) ——
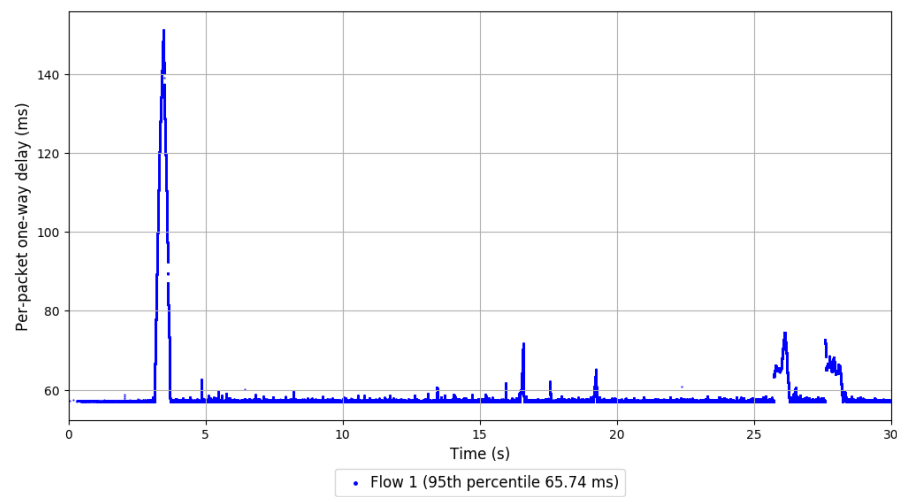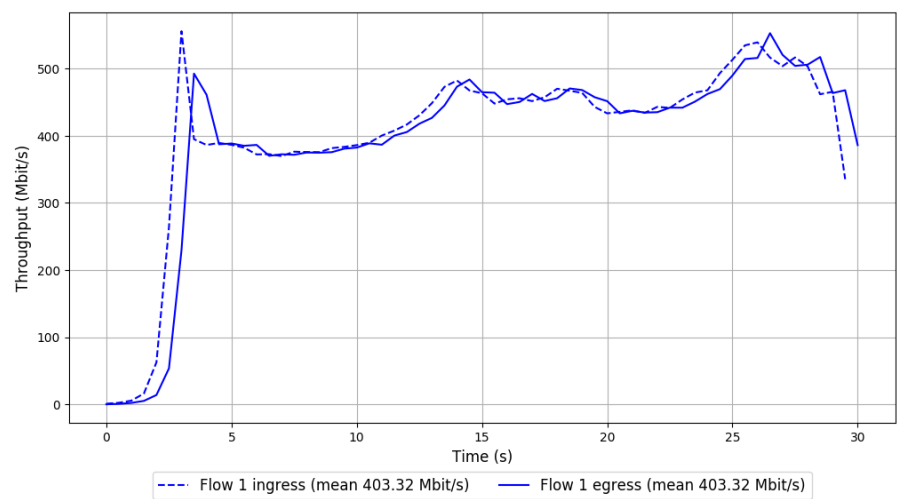

Flow 1 (95th percentile 60.35 ms)

```
Run 4: Statistics of PCC-Vivace

Start at: 2019-01-03 17:09:29
End at: 2019-01-03 17:09:59
Local clock offset: -0.17 ms
Remote clock offset: -0.179 ms


# Below is generated by plot.py at 2019-01-03 20:22:53
# Datalink statistics
-- Total of 1 flow:
Average throughput: 403.32 Mbit/s
95th percentile per-packet one-way delay: 65.743 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 403.32 Mbit/s
95th percentile per-packet one-way delay: 65.743 ms
Loss rate: 0.00%
```

Run 4: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 403.32 Mbit/s) --- Flow 1 egress (mean 403.32 Mbit/s)

• Flow 1 (95th percentile 65.74 ms)

```
Run 5: Statistics of PCC-Vivace

Start at: 2019-01-03 17:37:35
End at: 2019-01-03 17:38:05
Local clock offset: -0.257 ms
Remote clock offset: 0.021 ms


# Below is generated by plot.py at 2019-01-03 20:22:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 415.12 Mbit/s
95th percentile per-packet one-way delay: 59.741 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 415.12 Mbit/s
95th percentile per-packet one-way delay: 59.741 ms
Loss rate: 0.00%
```
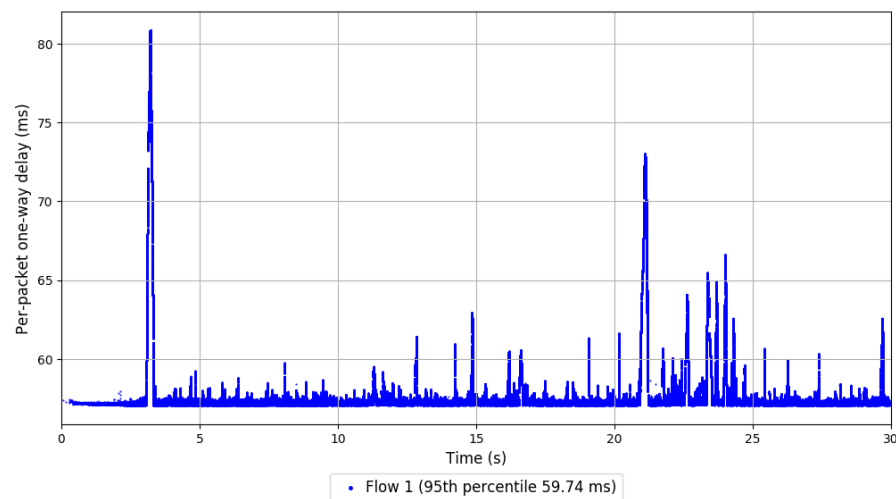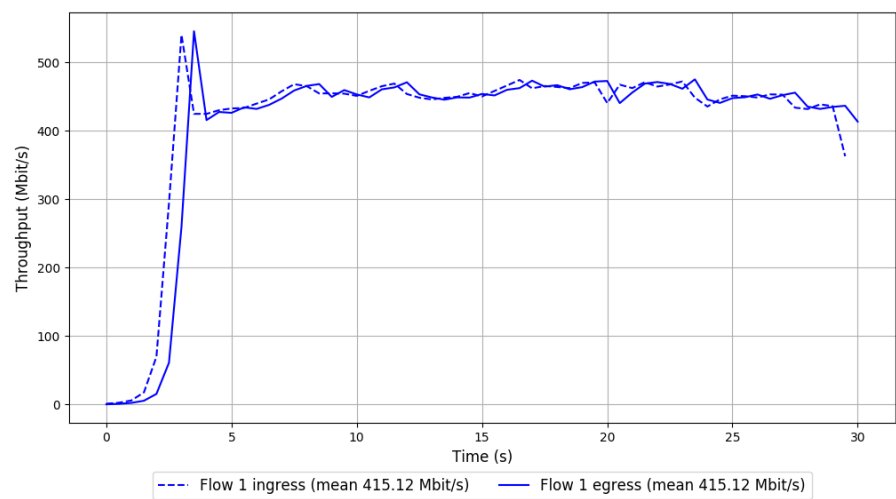
Run 5: Report of PCC-Vivace — Data Link

Flow 1 ingress (mean 415.12 Mbit/s)   Flow 1 egress (mean 415.12 Mbit/s)
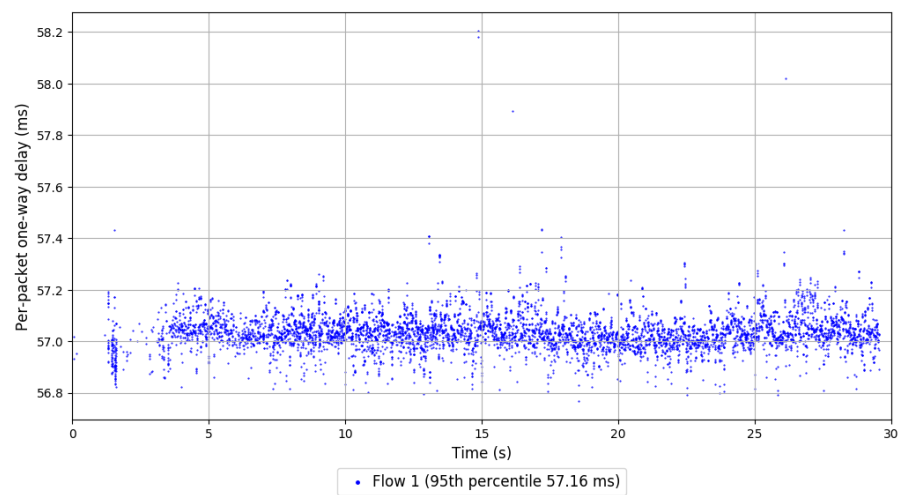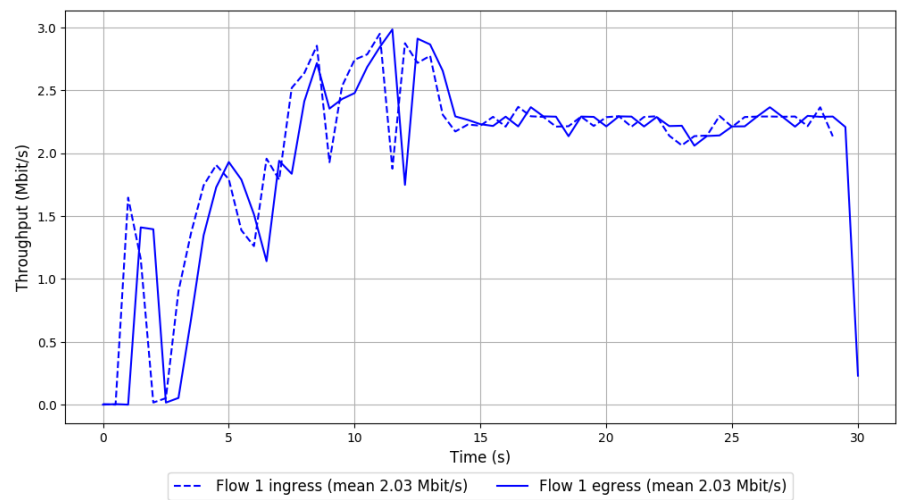

Flow 1 (95th percentile 59.74 ms)

```
Run 1: Statistics of WebRTC media

Start at: 2019-01-03 15:41:44
End at: 2019-01-03 15:42:14
Local clock offset: -0.083 ms
Remote clock offset: -0.247 ms


# Below is generated by plot.py at 2019-01-03 20:22:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 57.156 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 57.156 ms
Loss rate: 0.00%
```

Run 1: Report of WebRTC media — Data Link

```
Run 2: Statistics of WebRTC media

Start at: 2019-01-03 16:10:02
End at: 2019-01-03 16:10:32
Local clock offset: -0.013 ms
Remote clock offset: -0.07 ms


# Below is generated by plot.py at 2019-01-03 20:22:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.305 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.305 ms
Loss rate: 0.00%
```

Run 2: Report of WebRTC media — Data Link

```
Run 3: Statistics of WebRTC media

Start at: 2019-01-03 16:38:22
End at: 2019-01-03 16:38:52
Local clock offset: -0.102 ms
Remote clock offset: -0.181 ms


# Below is generated by plot.py at 2019-01-03 20:22:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.334 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 57.334 ms
Loss rate: 0.00%
```
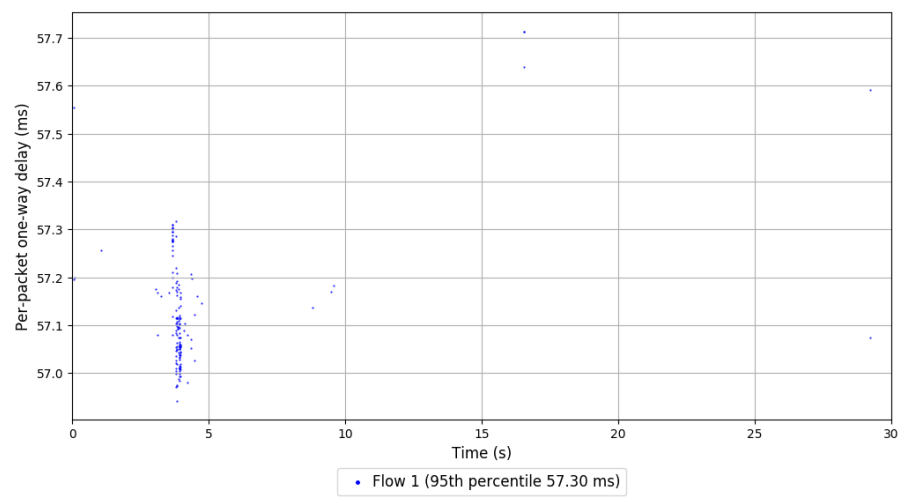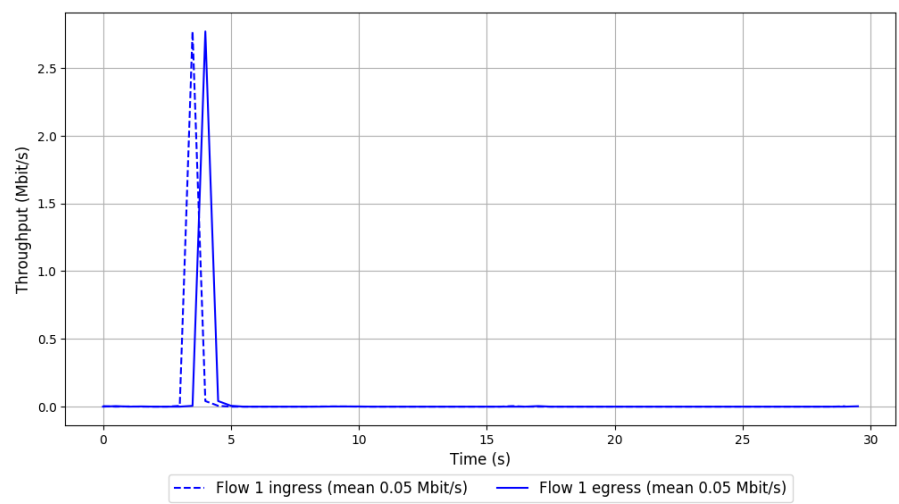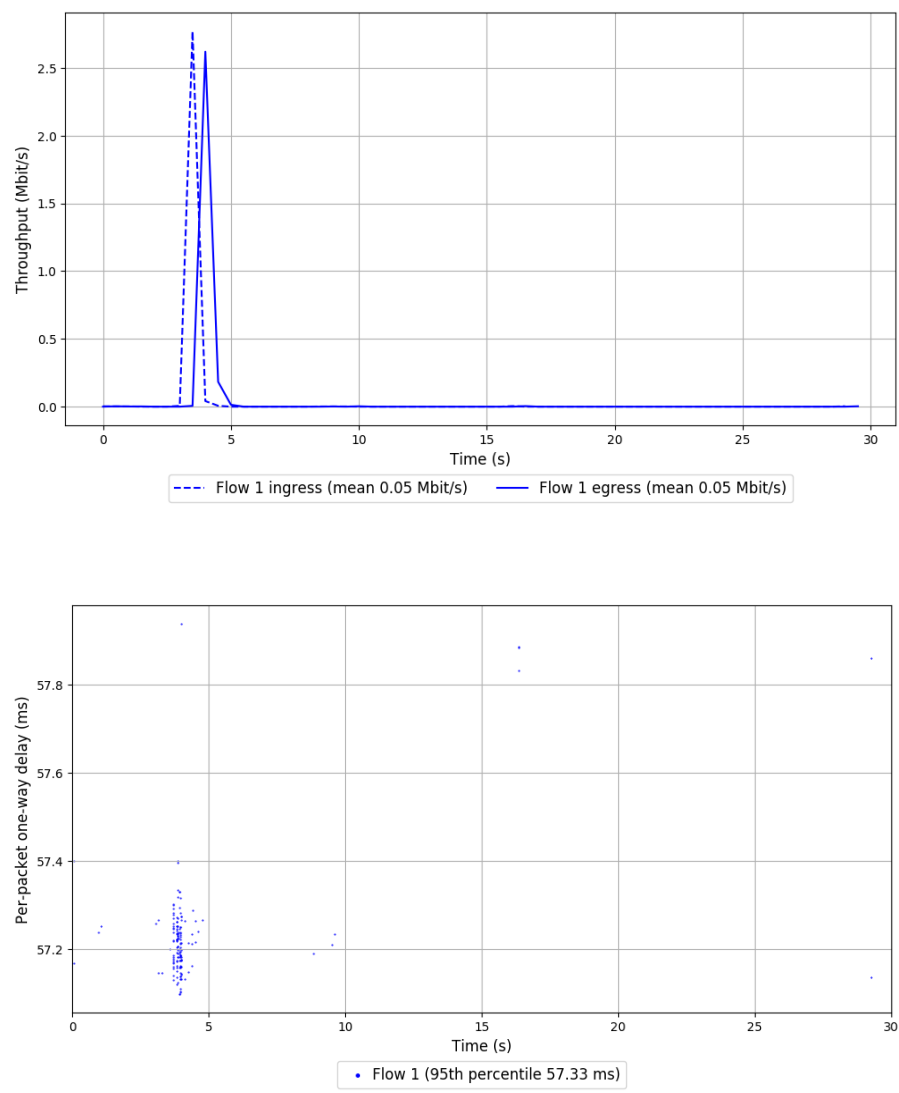
Run 3: Report of WebRTC media — Data Link

Flow 1 ingress (mean 0.05 Mbit/s) --- Flow 1 egress (mean 0.05 Mbit/s)

Flow 1 (95th percentile 57.33 ms)

```
Run 4: Statistics of WebRTC media

Start at: 2019-01-03 17:06:52
End at: 2019-01-03 17:07:22
Local clock offset: 0.345 ms
Remote clock offset: 0.142 ms


# Below is generated by plot.py at 2019-01-03 20:22:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 60.366 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 0.05 Mbit/s
95th percentile per-packet one-way delay: 60.366 ms
Loss rate: 0.00%
```
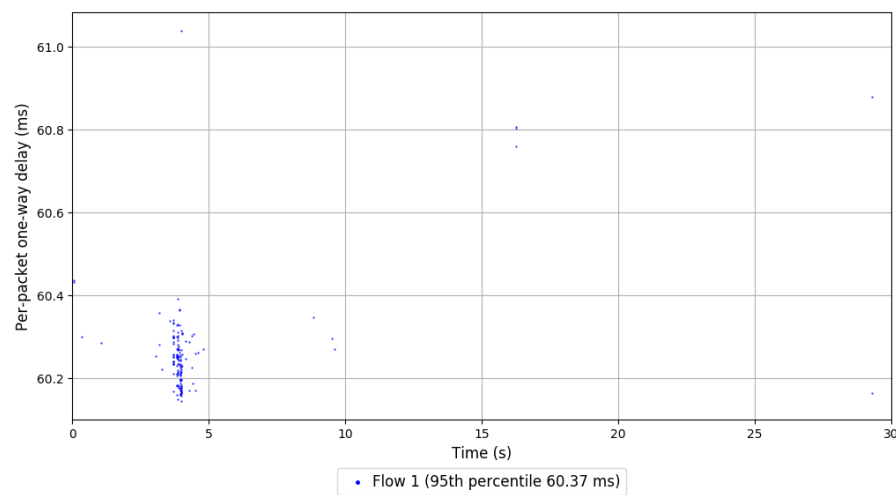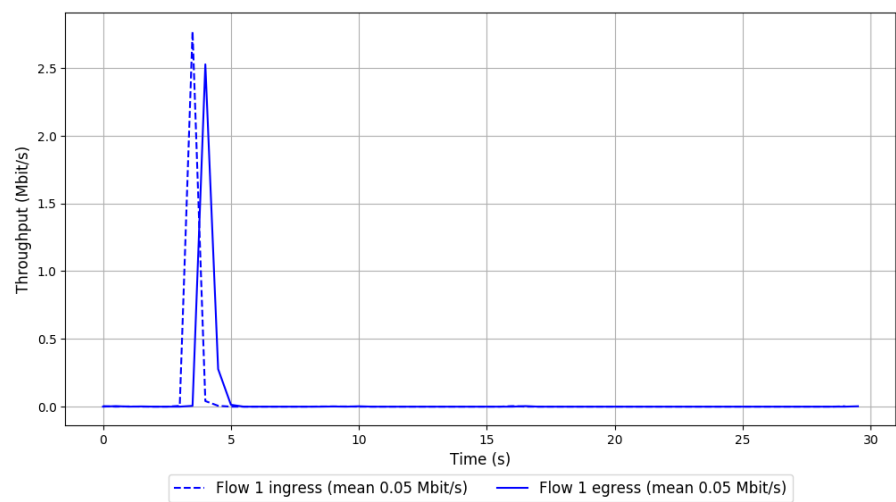
Run 4: Report of WebRTC media — Data Link

```
Run 5: Statistics of WebRTC media

Start at: 2019-01-03 17:34:57
End at: 2019-01-03 17:35:27
Local clock offset: -0.102 ms
Remote clock offset: -0.014 ms


# Below is generated by plot.py at 2019-01-03 20:22:56
# Datalink statistics
-- Total of 1 flow:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 57.252 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 2.03 Mbit/s
95th percentile per-packet one-way delay: 57.252 ms
Loss rate: 0.00%
```

Run 5: Report of WebRTC media — Data Link